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Connecticut Agricultural Experiment Station

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Fertilizer Report for 1917

By E. H. JENKINS, *Director and*
JOHN PHILLIPS STREET, *Chemist*
In Charge of the Analytical Laboratory

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* Absent on leave, In U. S. Service.

Report on Commercial Fertilizers, 1917.

By E. H. JENKINS, *Director*, and JOHN PHILLIPS STREET,
Chemist in Charge of the Analytical Laboratory.

During 1917 forty-four individuals and firms have entered for sale in this state 410 brands of fertilizers classified as follows:

Nitrogenous superphosphates with potash.....	167
Nitrogenous superphosphates without potash.....	160
Bone manures and tankage.....	34
Fish, blood, castor pomace and chemicals.....	49
 Total.....	 410

During the spring months V. L. Churchill, the sampling agent of the Station, visited about 100 towns and villages of the state and gathered samples of commercial fertilizers. These represented all the brands registered with the exception of the following:

Alpha Portland Cement Co.'s Alpha Potash-Lime Fertilizer; *American Agricultural Chemical Co.'s Dissolved Acid Phosphate,* *H. G. Acid Phosphate, Grain and Seeding Fertilizer, Odorless Grass and Lawn Top Dressing Revised, Monarch Potato Manure, Great Harvest Potato Special, Lion Brand Potato Manure, Bradley's Eclipse Phosphate 1916, Bradley's Extra Potato and Root Special, Bradley's Northland Potato Grower, Bradley's Complete Manure for Top Dressing Grass and Grain, Bradley's Triplex Potato Special, East India Economizer Phosphate 1916, East India Pilgrim Fertilizer 1916, East India Mayflower 1916, Quinnipiac Corn Manure 1916, Quinnipiac Phosphate 1916, Williams and Clark's Royal Phosphate 1916, Williams and Clark's Matchless Fertilizer 1916; *Apothecaries Hall Co.'s Victor Corn Phosphate;* *Bowker's Superphosphate with Ammonia 1%, Stockbridge Complete, Potato Phosphate 1916, Complete Alkaline Tobacco Grower 1916;* *Clark's Special Mixture;* *Coe Mortimer's Extra Special Potato Fertilizer Revised, 12% Blood Tankage;* *James' Ground Bone;* *Lister's Buyer's Choice Acid Phosphate, Valley**

Brand Fertilizer 1916, Celebrated Tobacco Fertilizer; *Manchester's* 14% Acid Phosphate, Fine Ground Bone, Ground Tankage 9-20; *National* Ammoniated Phosphate 1916, *Excelsior* Potato Fertilizer, H. G. Top Dressing 1916.

A sample of the American Agricultural Chemical Co.'s Grain and Seeding Fertilizer, sent by a purchaser, was analyzed.

CLASSIFICATION OF FERTILIZERS ANALYZED.

1. Containing nitrogen as the chief active ingredient:

Nitrate of soda.....	9
Cotton seed meal.....	95
Castor pomace	8

2. Containing phosphoric acid as the chief active ingredient:

Basic lime phosphate.....	4
Precipitated bone phosphate.....	6
Precipitated phosphate.....	1
Acid phosphate.....	17
Phospho plaster.....	1
Barium phosphate.....	1

3. Containing potash as the chief active ingredient:

Muriate of potash.....	3
Cotton hull ashes.....	1

4. Containing nitrogen and phosphoric acid:

Fish manures.....	12
Tankage.....	13
Bone manures.....	21

5. Mixed fertilizers:

Nitrogenous superphosphates with potash.....	147
Nitrogenous superphosphates without potash.....	198

6. Miscellaneous fertilizers and waste products:

Sheep manure.....	6
Wood ashes.....	20
Household wastes.....	28
Limestone.....	5
Miscellaneous.....	29

Total.....	625
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I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

NITRATE OF SODA, OR SODIUM NITRATE.

As offered in the Connecticut market this year, nitrate of soda has contained an average of 15.44 per cent. of nitrogen, equivalent to 93.6 per cent. of pure sodium nitrate.

The following nine samples were analyzed:

9364. Sold by Apothecaries Hall Co., Waterbury. Sampled at factory.

8944. Sold by Sanderson Fertilizer & Chemical Co., New Haven. Stock of C. R. Treat, Orange.

8947. Sold by Wilcox Fertilizer Co., Mystic. Sampled at factory.

9333. Sold by Coe-Mortimer Co., New York City. Stock of J. E. Stoddard, Abington.

9331. Sold by Berkshire Fertilizer Co., Bridgeport. Stock of C. Buckingham, Southport.

8939. Sold by American Agricultural Chemical Co., New York City. Stock of G. S. Phelps & Co., Thompsonville.

9352. Sold by L. T. Frisbie Co., New Haven. Sampled at factory.

8942. Sold by Nitrate Agencies Co., New York City. Stock of E. B. Palmer, Bridgeport.

9361. Sold by F. S. Royster Guano Co., Baltimore, Md. Stock of A. W. Anderson, Northford.

ANALYSES OF NITRATE OF SODA.

Station No..... 9364 8944 8947 9333 9331 8939 9352 8942 9361

Per cent. of

Nitrogen guaranteed. 15.00 15.00 15.00 15.00 14.80 15.00 15.00 15.00 15.00

Nitrogen found..... 15.52 15.20 15.48 15.44 15.32 15.34 15.56 15.78

Cost per ton..... \$70.00 70.00 73.00 73.00 85.00 88.00 90.00 90.00

Nitrogen costs cents

per pound..... 22.6 23.0 23.6 23.6 27.7 28.7 29.3 28.5

The cost of nitrogen in nitrate of soda in small lots at retail has been on the average 26 cents per pound, 1 1-2 cents more than last year, and 9 or 10 cents more than in 1915.

The supply has been so small, however, and the rise in price as the season advanced has been so rapid that average figures have little significance.

COTTON SEED MEAL.

Ninety-five samples of this material, bought for use as a fertilizer, have been tested. Most of the samples represent car lots.

Of the 69 samples which came to the laboratory with guaranties, 26 contained the claimed amount of nitrogen and require no detailed report here. On the other hand, 43, or 62 per cent. of the guaranteed samples, were deficient in nitrogen. The analyses of these samples are given in the table.

The deficiencies were not quite so great in amount as last year ranging from 0.10 to 0.81 per cent., with an average in the 43 samples of 0.30 per cent. Based on the average cost of nitrogen in cotton seed meal, as determined below, these deficiencies would warrant a rebate of from 53 cents to \$4.29 per ton, a considerable item when the meal is purchased in car lots.

The ninety-five samples contained from 5.37 to 7.20 per cent. of nitrogen, with an average of 6.10 per cent. The average cost per ton, in the 79 samples where the price was furnished, was \$44.20, about \$5.50 higher than last year.

Assuming 2.9 and 1.9 as the respective percentages of phosphoric acid and potash in the meal, if they are valued at 4 cents and 25 cents per pound, respectively, the nitrogen of cotton seed meal in the ninety-five samples cost on the average 26.5 cents per pound, 5.6 cents higher than last year. This is equivalent to \$5.30 per unit.

Most of the purchasers report that where the nitrogen in the meal was less than guaranteed they had little difficulty in securing rebates.

In our judgment the rebates did not fully compensate for the deficiency where not more than \$4.00 per unit was allowed. Certainly, at present prices of meal, \$5.30 per unit is none too high a rebate.

COTTON SEED MEALS BELOW GUARANTY.

Station No.	Manufacturer or Jobber, Car No. or Marks.	Purchased, Sampled, or Sent by	Per cent. Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
8746 17264	Apothecaries Hall Co., Waterbury.	K. C. Kulle, Suffield.....	5.83	6.17	\$39.00
8747 27058	"	" " "	5.70	6.17	39.00
8748 14897	"	" " "	5.83	6.17	39.00
F. W. Brode & Co., Memphis.					
9337	E. N. Austin, Suffield.....		5.90	6.38	43.00
8888	" " "		5.92	6.38	43.00
8743 77066	K. C. Kulle, Suffield.....		5.86	6.17	39.00
8744 36777	" " "		6.07	6.17	39.00
8745 26551	" " "		6.00	6.17	39.00
C. L. Campbell & Co.					
9205	Farmers' Co-op. Asso., Woodstock.		6.05	6.17	45.50
E. Crosby & Co., Brattle- boro, Vt.					
9105 27351	D. J. Sullivan, Suffield.....		6.07	6.18	43.50
S. P. Davis, Little Rock, Ark.					
8750	S. F. Brown, Windsor.....		6.05	6.17	39.00
East St. Louis Cotton Oil Co.					
8805 92365	R. Smith, Poquonock.....		5.69	6.17	39.00
Rodney J. Hardy & Sons					
9102 R. S. 5	Geo. S. Phelps & Co., Thompson- ville.....		5.55	5.76	46.00
Humphreys-Godwin Co.					
9252 105511	E. S. Seymour, Suffield.....		5.80	6.18	43.00
9112 50492	Spencer Bros., Suffield.....		5.95	6.18	43.00
9111 171212	" " "		5.55	6.18	43.00
9110 5136	" " "		5.37	6.18	43.00
9108 84575	" " "		6.02	6.18	44.75
9107 45934	" " "		5.84	6.18	44.75
9106 240265	" " "		5.86	6.18	43.00
9103 45240	" " "		5.96	6.18	44.00
9022 98855	S. J. Orr, W. Suffield.....		5.97	6.17	.....
8847 14575	F. D. Lawton & Son, Unionville.		5.75	6.17	.....
8781 13556	Spencer Bros., Suffield.....		6.04	6.18	39.00
8761 37750	Olds & Whipple, Hartford.....		6.44	6.56	50.00
8762 550565	" " "		6.39	6.56	50.00

COTTONSEED MEALS BELOW GUARANTY.—Continued.

Station No.	Manufacturer or Jobber, Car No. or Marks.	Purchased, Sampled, or Sent by	Per cent. Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
9046	Poe Cottonseed Products Co., Memphis.	Amer. Sumatra Tob. Co., Hartford	6.05	6.17	.....
8780	J. E. Soper Co., Boston. 20769.....	Spencer Bros., Suffield.....	5.98	6.18	\$39.00
9163	Southern Cotton Oil Co., Memphis. 28087.....	Conn. Tobacco Corp., Silver Lane	5.70	6.17	44.50
9164	60770.....	" " " "	5.92	6.17	44.50
9013	133895.....	" " " "	5.81	6.17	44.50
9014	24948.....	" " " "	5.78	6.17	44.50
9015	151067.....	" " " "	5.78	6.17	44.50
9016	151064.....	" " " "	5.73	6.17	44.50
9017	151049.....	" " " "	5.78	6.17	44.50
9012	151072.....	" " " "	5.74	6.17	44.50
8823	36238.....	" " " "	5.91	6.17	44.50
8824	151059.....	" " " "	6.01	6.17	44.50
8802	16002.....	" " " "	5.97	6.17	44.50
9158	Union Seed & Fert. Co. 40656.....	John Sullivan & Son, Suffield.....	6.00	6.17	42.50
9458	Virginia-Carolina Chem. Co. N. Y. City. 27871.....	Conn. Tobacco Corp., Silver Lane	5.46	5.76	46.00
9459	36400.....	" " " "	5.42	5.76	46.00
9460	87114.....	" " " "	5.52	5.76	46.00

CASTOR POMACE.

This is a residue from the manufacture of castor oil and is used chiefly as a tobacco fertilizer. Experience indicates that it is a little slower in its action than cotton seed meal and that it gives a somewhat heavier quality to the tobacco leaf. Stock will eat it greedily if they have the chance, but it is extremely poisonous.

The following eight samples were analyzed:

8940. Sold by American Agricultural Chemical Co., New York City. Stock of C. F. Allen, Warehouse Point.

8871. Sold by Apothecaries Hall Co., Waterbury. Sampled and sent by Karl C. Kulle, Suffield.

9330. Sold by Apothecaries Hall Co., Waterbury. Stock of W. J. Reeves, Windsorville.

9350. Sold by Baker Castor Oil Co., New York City. Stock of Olds & Whipple, Hartford.

9332. Sold by Berkshire Fertilizer Co., Bridgeport. Stock of W. N. Pinney, Rockville.

9390. Sold by Coe-Mortimer Co., New York City. Stock of M. C. Griffin, East Granby.

9360. Sold by Olds & Whipple, Hartford. Stock of J. N. Lasbury, Broad Brook.

8945. Sold by Spencer Bros., Suffield. Sampled at factory.

ANALYSES OF CASTOR POMACE.

Station No.....	8940	8871	9330	9350	9332	9390	9360	8945
<i>Per cent. of</i>								
Nitrogen guaranteed	4.53	5.00	4.52	4.50	4.52	4.53	5.00	4.84
Nitrogen found....	4.65	3.45	4.61	4.75	4.71	4.66	5.06	4.91
Cost per ton.....	\$32.25	32.00	34.00	31.00	31.00	28.00	32.00	30.00

In sample **9350** one per cent. each of phosphoric acid and potash was guaranteed; the sample contained 1.46 per cent. of phosphoric acid but only 0.45 per cent. of water-soluble potash.

Sample **8871** was 1.55 per cent. deficient in nitrogen.

The average nitrogen content of the samples was 4.60 per cent. and the average cost per ton, \$31.28.

Assuming a value of 4 cents per pound for phosphoric acid and 25 cents per pound for potash, the average cost of nitrogen per pound in castor pomace this year was 27.3 cents, or \$5.46 per unit.

II. RAW MATERIALS CHIEFLY VALUABLE FOR PHOSPHORIC ACID.

BASIC LIME PHOSPHATE.

Shipments of basic phosphate from abroad have been almost cut off on account of the war. As a substitute for basic phosphate a product called "basic lime phosphate" has been put on the market, of which we have analyzed four samples of two brands. "Available phosphoric acid" was determined by the so-called Wagner method.

9367. Basic Lime Phosphate. Sold by American Agricultural Chemical Co., New York City. Stock of C. R. Main, Norwich.

9469. Same brand as **9367.** Stock of W. P. Chipman & Son, Talcottville.

9370. Basic Fruit and Legume Phosphate. Sold by Coe-Mortimer Co., New York City. Stock of Willis Smith, Winsted.

9434. Same brand as **9370.** Stock of A. T. Henry, Wallingford.

ANALYSES OF BASIC LIME PHOSPHATE.

Station No.....	9367	9469	9370	9434
<i>Per cent. of</i>				
Total phosphoric acid.....	14.29	14.10	14.02	15.65
"Available" phosphoric acid guarantee	13.00	12.00	13.00	13.00
"Available" phosphoric acid found ..	11.81	11.71	12.28	13.13
Cost per ton.....	....	\$22.00	....	15.00

One sample of each brand contained less "available" phosphoric acid than was guaranteed.

PRECIPITATED BONE PHOSPHATE.

This is a manufacturing by-product and consists of fine precipitated phosphate of lime, neutral in reaction, and contains no nitrogen. It is very readily soluble in ammonium citrate solution and is quickly available to crops. It is at present chiefly used as a tobacco fertilizer.

Six samples were analyzed, all of which were sold by Olds and Whipple, Hartford. **9371** was sampled by the Station at the factory, and **9373** by the Station from the stock of F. T. Phelps, Suffield; **8711**, **8712** and **8742** were sampled and sent by the seller; **8872** was sampled and sent by Karl C. Kulle, Suffield. The respective car numbers for the last four samples were 88300, 73792, 4822 and 73365.

The guaranty for the material was 28 per cent. "available" and 32 per cent. total phosphoric acid.

ANALYSES OF PRECIPITATED BONE PHOSPHATE.

Station No.....	9371	9373	8711	8712	8742	8872
<i>Per cent. of</i>						
Water-soluble phosphoric acid..	1.56	1.33	1.41	1.37	1.01	1.50
Citrate-soluble phosphoric acid.	29.98	27.98	28.67	28.44	30.65	29.10
Citrate-insoluble phosphoric acid	8.02	7.61	6.00	6.49	8.64	7.02
Total phosphoric acid.....	39.56	36.92	36.08	36.30	40.30	37.62
"Available" phosphoric acid....	31.54	29.31	30.08	29.81	31.66	30.60

The above samples sold at the rate of \$1.40 to \$1.50 per unit of "available" phosphoric acid, or from 7.0 to 7.5 cents per pound.

PRECIPITATED PHOSPHATE.

9369. Sold by Berkshire Fertilizer Co., Bridgeport. Stock of W. N. Pinney, Rockville. Cost \$30.00 per ton. Guaranteed 22 per cent. "available" phosphoric acid. It contained

Water-soluble phosphoric acid.....	5.43
Citrate-soluble phosphoric acid.....	18.78
Citrate-insoluble phosphoric acid.....	0.95
Total phosphoric acid.....	25.16
"Available" phosphoric acid.....	24.21

"Available" phosphoric acid cost 6.2 cents per pound.

DISSOLVED ROCK PHOSPHATE OR ACID PHOSPHATE.

This material is made by treating mineral phosphates or phosphate rock with oil of vitriol (sulphuric acid), which converts the larger part of the phosphoric acid into forms soluble in water, and at the same time changes into sulphate of lime a large part of the lime which was previously combined with phosphoric acid.

The guaranty usually gives the percentage of "available" phosphoric acid. This is only a trade name for the sum of the water-soluble and citrate-soluble phosphoric acid. Its amount gives no certain indication of the actual availability of this phosphoric acid to crops. In acid phosphate, however, well made from domestic rock, it is fair to assume that the larger part of the "available" is also agriculturally available.

The following seventeen samples were analyzed:

9353. Sold by E. Manchester & Sons, Winsted. Stock of H. H. McKnight, Ellington.

9328. Sold by L. T. Frisbie Co., New Haven. Stock of H. G. Cooke, Branford.

9356. Sold by Virginia-Carolina Chemical Co., New York City. Stock of Tanner & Wilcox, Winsted.

8943. Sold by Nitrate Agencies Co., New York City. Stock of Edward White, Rockville.

9324. Sold by Armour Fertilizer Works, Chrome, N. J. Stock of Edward White, Rockville.

8816. Sold by L. T. Frisbie Co., New Haven. Sampled and sent by F. W. Browning, Norwich.

8938. Sold by American Agricultural Chemical Co., New York City. Stock of L. F. Burr, Branford.

9322. Sold by American Agricultural Chemical Co., New York City. Stock of J. A. Glasnapp, West Cheshire.

8946. Sold by Wilcox Fertilizer Co., Mystic. Sampled at factory.

8937. Sold by American Agricultural Chemical Co., New York City. Stock of L. F. Burr, Branford.

9327. Sold by Coe-Mortimer Co., New York City. Stock of J. E. Stoddard, Abington.

9351. Sold by L. T. Frisbie Co., New Haven. Sampled at factory.

9321. High Grade Soluble Phosphate. Sold by Coe-Mortimer Co., New York City. Stock of Joseph Humphreys, Danbury.

9326. Soluble Phosphate. Sold by Bowker Fertilizer Co., New York City. Stock of A. R. Manning, Yantic.

9355. Sold by F. S. Royster Guano Co., Baltimore, Md. Stock of W. Howard, Windsor.

8941. Sold by Apothecaries Hall Co., Waterbury. Sampled at factory.

8760. Plain Superphosphate. Sold by Sanderson Fertilizer & Chemical Co., New Haven. Sampled and sent by A. B. Smith, Clintonville. Suspected of containing added lime. 27.88 per cent. was present, not an abnormal amount.

ANALYSES OF ACID PHOSPHATE.

Station No.	Water-soluble phosphoric acid.	Citrate-soluble phosphoric acid.	Citrate-insoluble phosphoric acid.	Total phosphoric acid.	"Available" phosphoric acid found.	"Available" phosphoric acid guaranteed.	Cost per ton.	"Available" phosphoric acid cost, cents per pound.
9353	13.87	3.87	1.39	19.13	17.74	16.0	\$18.50	5.2
9328	13.36	2.31	0.74	16.41	15.67	14.0	17.00	5.4
9356	15.96	1.77	0.27	18.00	17.73	16.0	19.00	5.4
8943	15.41	1.29	0.86	17.56	16.70	16.0	18.50	5.5
9324	14.83	1.64	0.52	16.99	16.47	16.0	18.50	5.6
8816	16.42	1.15	0.29	17.86	17.57	16.0	20.00	5.7
8938	14.29	2.81	0.82	17.92	17.10	16.0	21.00	6.1
9322	11.02	6.71	0.64	18.37	17.73	18.0	22.50	6.3
8946	15.05	2.22	0.13	17.40	17.27	16.0	22.00	6.4
8937	9.48	5.85	0.79	16.12	15.33	14.0	20.00	6.5
9327	12.71	3.96	0.36	17.03	16.67	16.0	22.00	6.6
9351	15.92	1.25	0.78	17.95	17.17	16.0	23.00	6.7
9321	10.84	4.70	0.49	16.03	15.54	14.0	22.00	7.1
9326	9.96	4.79	0.50	15.25	14.75	14.0	24.00	8.1
9355	13.03	3.41	0.36	16.80	16.44	16.0	....	..
8941	12.44	2.10	0.50	15.04	14.54	14.0	....	..
8760	....	....	....	17.00	....	....	....	..

One of the above samples was guaranteed 18 per cent. "available"; ten were guaranteed 16 per cent., and five 14 per cent.

The average cost of "available" phosphoric acid in the above samples was 6.2 cents per pound, about 0.75 cents less than last year.

PHOSPHO PLASTER.

9368. Sold by American Agricultural Chemical Co., New York City. Stock of A. L. Burdick, Westbrook. Guaranteed 2 per cent. "available" phosphoric acid. It contained

Water-soluble phosphoric acid.....	2.03
Citrate-soluble phosphoric acid.....	2.63
Citrate-insoluble phosphoric acid.....	2.21
Total phosphoric acid.....	6.87
"Available" phosphoric acid.....	4.66
Lime (calcium oxid).....	31.93

BARIUM-PHOSPHATE.

9408. Sold by Witherbee, Sherman & Co., Port Henry, N. Y. Stock of Station Farm, Mt. Carmel. Guaranteed 14 per cent. phosphoric acid, 7 per cent. barium sulphid.

It contained 15.34 per cent. phosphoric acid, chiefly in insoluble forms.

III. RAW MATERIALS OF HIGH GRADE CONTAINING POTASH.

Owing to the war very little, if any, potash has been shipped to this country during the past three years. The three samples of muriate of potash analyzed represented stock in the hands of farmers who were tempted by the abnormally high prices to dispose of their surplus stock.

MURIATE OF POTASH.

8691, 8692. Stock of Samuel Wilson, Waterbury. They contained 53.92 and 52.44 per cent. of potash, respectively.

8801. Stock of W. T. Peters, Cheshire. It contained 58.24 per cent. of potash.

COTTON HULL ASHES.

9279. Sold by Olds and Whipple, Hartford. Car No. 22120; stock of Windsor Tobacco Growers Corporation, Windsor. Cost \$6.00 per unit of water-soluble potash, equivalent to 30 cents per pound for actual potash. It contained 24.78 per cent. of potash.

IV. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN AND PHOSPHORIC ACID.

FISH MANURES.

The twelve samples analyzed show considerable uniformity in the content of nitrogen, which ranges from 7.28 to 9.75 per cent., with an average of 8.34 per cent. The phosphoric acid, however, shows a wide range, from 2.75 to 10.41 per cent., with an average of 6.77 per cent. Six of the samples failed to meet their guaranties, two being deficient in nitrogen, one in phosphoric acid, and three in both of these elements. **9365** and **9100** contained only about half of the phosphoric acid guaranteed.

The average cost was \$53.44 per ton, about \$2 higher than last year. If the phosphoric acid were valued at 4 cents per pound, the nitrogen cost on the average 28.8 cents per pound; if at 6 cents per pound, the nitrogen cost 27.2 cents.

ANALYSES OF

Station No.	Manufacturer	Dealer or Purchaser
	<i>Sampled by Station:</i>	
8921	Amer. Agr. Chem. Co.	C. O. Treat, Manchester.
9045	Amer. Agr. Chem. Co.	C. K. Hale, Chicopee.
9323	Amer. Agr. Chem. Co.	Spencer Bros., Suffield.
9365	Apothecaries Hall Co.	Factory.
9325	Berkshire Fert. Co.	Factory.
9374	E. D. Chittenden Co.	F. T. Phelps, Suffield.
9357	International Agr. Corp.	S. B. Smith, East Haven.
8924	Olds and Whipple.	J. Gamble, Thompsonville.
9354	Olds and Whipple.	Factory.
8925	F. S. Royster Guano Co.	S. J. Orr, West Suffield.
	<i>Sampled by Purchaser:</i>	
9100*	L. T. Frisbie Co.	John Leonard, Burnside.
8873	Olds and Whipple.	K. C. Kulle, Suffield.

* Contained 3.10 per cent. chlorin.

TANKAGE.

(Analyses on pages 386 and 387.)

This material, made from the waste of slaughter houses and meat markets, naturally shows considerable differences in composition, depending upon the relative amounts of meat and bone present.

The thirteen samples analyzed fall into two quite well-defined groups, the one containing from 4.26 to 5.67 per cent. of nitrogen and from 14.06 to 21.42 per cent. of phosphoric acid, the other containing from 7.16 to 8.34 per cent. of nitrogen and from 5.62 to 11.19 per cent. of phosphoric acid.

The samples of the first group, approximately 6-30 grade, cost from \$28 to \$42 per ton; the higher grade tankages, 9-20, cost from \$48 to \$55 per ton.

The average composition and cost of the two grades were as follows:

Grade.	Nitrogen.	Phosphoric Acid.	Cost per Ton.
6-30	4.78	17.39	\$35.33
9-20	7.83	7.96	51.00

Only four of these samples could be called fine, having 50 per cent. or more by weight in particles smaller than 1-50 inch.

Two samples failed to meet their nitrogen guaranty, one that for phosphoric acid, and one was deficient in both nitrogen and phosphoric acid.

FISH MANURES.

As Ammonia	Nitrogen			Phosphoric Acid.			Total Phosphoric Acid.		Cost per ton.
	As Organic	Total found.	Total guaranteed.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Found.	Guaranteed.	
0.20	7.77	7.97	8.23	0.85	5.03	0.36	6.24	6.0	\$55.00
0.22	7.90	8.12	8.23	0.37	7.10	2.94	10.41	6.0	....
0.19	7.81	8.00	8.23	0.65	4.01	0.75	5.41	6.0	55.00
0.14	7.62	7.76	8.20	0.25	2.24	0.26	2.75	5.5	48.00
0.24	8.23	8.47	8.23	0.40	5.04	1.74	7.18	6.0	57.00
2.23	5.05	7.28	8.00	0.18	4.02	0.83	5.03	6.0	52.00
0.23-	8.01	8.24	8.20	0.32	4.87	2.09	7.28	....	....
0.13	9.41	9.54	8.23	0.38	5.81	1.68	7.87	5.5	55.00
0.25	8.69	8.94	8.23	0.80	5.53	1.51	7.84	5.5	55.00
0.11	8.15	8.26	8.23	0.50	4.61	1.41	6.52	5.0	....
....	....	7.71	7.41	....	....	....	6.95	14.0	50.00
....	....	9.75	8.23	....	....	....	7.82	5.5	54.00

ANALYSES OF

Station No.	Manufacturer.	Dealer or Purchaser.
8922	Amer. Agr. Chem. Co.....	Spencer Bros., Suffield.....
9366	Apothecaries Hall Co.....	Factory.....
9461	Atlantic Packing Co.....	Frank S. Platt Co., New Haven...
9334	Coe-Mortimer Co. (6-30).....	Willis Smith, Winsted.....
9335	Conn. Fat Rend. and Fert. Corp.	Factory.....
9336	L. T. Frisbie Co.....	Factory.....
8923	L. T. Frisbie Co.....	Knowles, Lombard Co., Guilford...
9358	Lister's Agr. Chem. Works (Celebrated Ground Bone and Tankage)	S. J. Orr, West Suffield.....
9359	E. Manchester & Sons.....	H. H. McKnight, Ellington.....
9362	Sanderson Fert. & Chem. Co.....	W. H. Burr, Westport.....
9363	Sanderson Fert. & Chem. Co.....	Factory.....
8926	Wilcox Fertilizer Co.....	Factory.....
8948	.....	S. D. Woodruff Sons, Orange.....

BONE MANURES.

(*Analyses on pages 388 and 389.*)

The analyses of twenty-one samples of bone are given in the table. "Bone," like tankage, has a wide range of composition; some samples being from raw bone with or without much adhering meat and cartilage, others representing bone which has been cooked, the grease and nitrogenous matter being partially removed.

The average per cent. of nitrogen in these samples is 3.40 and of phosphoric acid 23.35. The average cost per ton, barring the exceptional prices of 9393 and 9387, was \$40.60.

Two samples failed to meet their nitrogen and two their phosphoric acid guaranties.

V. MIXED FERTILIZERS.

NITROGENOUS SUPERPHOSPHATES.

REGARDING GUARANTIES.

The following tables, pages 394 to 415, present 375 analyses.

Of those sampled by the Station Agent 143 are guaranteed to contain potash. 172 contain no potash. Three brands were

TANKAGE.

As Ammonia.	Nitrogen.			Phosphoric Acid.		Mechanical Analysis.		Cost per ton.
	As Organic.	Total found.	Total guaranteed.	Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
0.39	5.28	5.67	4.94	14.06	13.73	40	60	\$38.00
0.13	5.52	5.65	4.94	16.76	13.73	38	62	36.00
0.17	6.99	7.16	7.41	7.18	9.15	50	50	50.00
0.46	5.19	5.65	4.94	14.78	13.73	44	56	.....
0.20	4.06	4.26	3.00	21.42	20.00	59	41	28.00
0.22	4.46	4.68	4.92	15.62	15.00	18	82	42.00
0.22	7.35	7.57	7.38	11.19	10.00	24	76	48.00
0.14	2.56	2.70	2.67	13.85	12.00	56	44	.....
0.41	4.56	4.97	4.93	19.33	13.73	45	55	33.00
0.33	4.51	4.84	4.94	20.20	13.73	64	36	.....
0.29	4.34	4.63	4.94	20.46	13.73	62	38	35.00
0.24	7.99	8.23	8.24	5.62	8.00	28	72	55.00
0.28	8.06	8.34	.....	5.86	.....	33	67	.....

guaranteed to contain four per cent. of potash, though only one had nearly that amount. Seven brands guaranteed 3 per cent., nineteen 2, and the rest 1 per cent. or less.

Of the brands containing potash about 23 per cent. failed to meet their guaranty in one ingredient, while of the 172 without potash 16.8 per cent. failed in the same way.

In a large number of cases, however, a shortage of one ingredient was made good by an overrun of another, so that the buyer received full value for his money, but in the following brands this was not the case. Reckoning nitrogen at 27 cents, available phosphoric acid at 6 and potash at 30 cents per pound, respectively, the deficiency in money value per ton was:

No.	Name of Brand	Deficiency in Ton Value
9213	Armour's Bidwell's 3-8-1.....	\$1.88
9299	" 5-8-4 Fertilizer.....	4.65
9290	" 7-6-1 "	3.83
9240	Bowker's Complete.....	9.52
9293	Coe-Mortimer's Red Brand Excelsior.....	3.50
9405	National Fertilizer Co.'s Extra H. G. Potato.....	1.81
9039	Rogers & Hubbard Co.'s Bone Base Soluble Potato.....	1.68
9306	A. A. C. Co.'s H. G. Grass Top Dressing.....	1.80
9316	Atlantic Packing Co.'s Tobacco Special.....	1.17
9130	International Agr'l Corp's. Buffalo Top Dresser.....	3.15
9131	" " " Vegetable and Potato.....	1.99
9173	N. E. Fertilizer Co.'s Potato Fertilizer.....	1.26

ANALYSES OF

Station No.	Manufacturer and Brand.	Dealer or Purchaser.
<i>Sampled by Station:</i>		
9376	Amer. Agr. Chem. Co., Fine Ground Bone..	L. F. Burr, Branford.....
9377	Apothecaries Hall Co., Bone.....	Factory.....
9378	Armour Fertilizer Works, Bone Meal.....	Brower & Malone, Norwalk.....
9379	Berkshire Fertilizer Co., Fine Ground Bone.	Wheeler & Co., Bridgeport.....
9380	Bowker Fertilizer Co., Fresh Ground Bone..	A. L. Burdick, Westbrook.....
9381	Coe-Mortimer Co., Fine Ground Bone..	J. E. Stoddard, Abington.....
9375	L. T. Frisbie Co., Fine Bone Meal.	Lightbourn & Pond, New Haven.....
9414	L. T. Frisbie Co., Bone Meal.....	Frank S. Platt Co., New Haven.....
9382	Lister's Agr. Chem. Works, Bone Meal.....	F. C. Benjamin, Danbury.....
9383	Lowell Fertilizer Co., Ground Bone.....	Geo. S. Phelps & Co., Thompsonville.....
9385	Rogers & Hubbard Co., Hubbard's Pure Raw Knuckle Bone Flour.....	E. A. Buck, Willimantic.....
9384	Rogers & Hubbard Co., Hubbard's Strictly Pure Fine Bone.....	J. P. Barstow & Co., Norwich.....
9393	Rogers & Hubbard Co., Rogers' Knuckle Bone Flour.....	Cadwell & Jones, Hartford
9392	Rogers & Hubbard Co., Rogers' Pure Fine Ground Bone.....	Factory.....
9386	F. S. Royster Guano Co., Fine Ground Bone Meal.....	S. J. Orr, West Suffield.....
9387	Sanderson Fert. & Chem. Co., Fine Ground Bone.....	W. H. Burr, Westport.....
9388	M. L. Shoemaker & Co., Swift-Sure Bone Meal.....	Olds & Whipple, Hartford.....
9389	Wilcox Fertilizer Co., Pure Ground Bone..	Factory.....
<i>Sampled by Purchaser:</i>		
8829	Apothecaries Hall Co., Bone.....	H. B. Cornwall, Meriden.....
9024	Bowker Fertilizer Co., High Grade Ground Bone.....	James O'Connor, Wethersfield...
8775	L. T. Frisbie Co., Bone Meal.....	H. W. Ferry, So. Glastonbury...

* Car lot.

QUALITY OF PLANT FOOD IN NITROGENOUS SUPERPHOSPHATES.

The potash given in the analyses is all water-soluble and available to crops.

The same is true of the "soluble" phosphoric acid. The "citrate-soluble" phosphoric acid, which with the water-soluble is called "available" by trade usage, is doubtless more promptly available to crops than the insoluble, although there are probably

BONE MANURES.

Nitrogen.		Phosphoric Acid.		Mechanical Analysis.		Cost per ton.
Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
3.15	2.47	21.38	22.88	41	59	\$38.00
3.21	2.47	23.98	22.00	59	41	36.00
3.12	2.47	25.08	22.00	53	47	45.00
3.08	2.50	22.32	20.00	44	56	40.00
2.58	2.47	24.36	22.88	51	49	42.00
3.12	2.47	24.00	22.88	51	49	.....
3.17	2.46	25.10	20.00	45	55	44.00
4.09	3.93	20.58	21.39	35	65	44.00
3.64	2.47	23.20	23.00	57	43	40.00
2.47	2.46	26.18	20.00	69	31	37.00
3.94	3.82	25.08	24.70	39	61	.....
3.27	3.50	21.08	20.00	62	38	41.00
3.88	3.82	25.16	24.70	71	29	55.00
3.40	3.50	20.14	20.00	41	59	.....
2.61	2.47	23.48	22.90	50	50	40.00
2.23	2.47	21.64	20.00	65	35	*34.00
6.26	4.53	20.64	20.00	56	44	47.00
2.74	2.46	26.26	22.00	51	49	41.00
4.93	....	18.86	....	80	20	.....
3.69	3.29	25.07	20.50	46	54	39.00
2.84	2.46	26.71	20.00	..	..	35.00

very considerable differences in the agricultural value of citrate-soluble phosphoric acid from different sources or materials. The same is true, also, of insoluble phosphoric acid. Thus, the insoluble phosphoric acid of bone is much more quickly available to crops than that from phosphate rock or apatite.

It is safest to give preference to those mixed fertilizers in which the proportion of insoluble phosphoric acid is small.

Regarding nitrogen, that which is in form of nitrates is the

BRANDS IN WHICH INFERIOR FORMS OF NITROGEN ARE INDICATED.

Station No.	Brand.	Organic Nitrogen.			
		Total.	Water-soluble.	Active-insoluble.	Inactive-insoluble.
9117	Armour's Wheat, Corn and Oats Special . . .	0.81	0.25	0.27	0.29
8980	Armour's 1-8-2 Fertilizer.	0.80	0.25	0.15	0.40
9282	Royster's Dreadnaught Fertilizer.	0.78	0.33	0.19	0.26
8918	Royster's Logical Compound.	1.39	0.60	0.34	0.45
8972	Mapes' 5% Ammonia Special	0.59	0.09	0.22	0.28

Per cent.
active insol-
uble by Neu-
tral Method.

Per cent.
active insol-
uble by Alka-
line Method.

Per cent.
active insol-
uble by Neu-
tral Method.

most quickly and completely available. As a rule the nitrogen of ammonia salts is less quickly and completely available than that of nitrates, but ranks next to it.

The organic nitrogen of fertilizers is supplied by a great variety of materials which differ very considerably in agricultural value.

The details of the methods used to detect very inferior forms of nitrogen have been given in previous reports.

By the alkaline permanganate method forms of organic nitrogen are considered inferior in which less than 50 per cent. of the water-insoluble, organic nitrogen is soluble in the reagent. By the neutral permanganate method, any solubility of less than 80 per cent. is suspicious. Some objection has been made to the method because dried horse and sheep manure, recognized as good fertilizers are ranked as inferior by these methods. It is true that both have agricultural value, but this depends to a considerable extent on the favorable action in the soil of the decomposing vegetable matter, while experiment has shown that the organic nitrogen in them is less available than in the forms ordinarily used in the compounding of fertilizers.

In the following brands inferior forms of nitrogen are indicated by both methods:

REGARDING PRICES OF NITROGENOUS SUPERPHOSPHATES.

The dealers' quotation of the cash ton price was obtained in most cases when each sample was drawn. These prices are, however, no real guide to prospective purchasers. The manufacturer has little or no control over the price which the retailer or agent will charge and the latter sells to the consumer according to special terms made with him, which are largely governed by time of payment and knowledge of the consumer's financial standing and habits. To take a concrete case: To-day a 2-10-0 formula can be bought for \$40. That is called the "cash ton price."

But if paid for before Feb. 1 its price will be \$37; if before Apr. 1, \$37.40; July 1, \$38.00 and on Dec. 1, \$40. If bought in car lots it will cost \$1.00 per ton less. If sold in small fractions of a ton the price will be considerably higher. Again, if several dealers in one place are competing for trade, the quoted prices are likely to be less than where there is no competition, or where the dealer knows that payments will be slow.

The general range of prices is shown in the following table:

AVERAGE HIGHEST AND LOWEST PRICES QUOTED TO THE STATION AGENT, 1917.

Formula.	Average Cash Ton Price.	Lowest.	Highest.
1- 7-1	\$29.00	.....	.....
1- 8-1	29.75	\$28.00	\$31.00
1-10-1	31.67	30.00	35.00
2- 8-1	33.50	30.00	34.00
2- 9-1	33.33	31.00	36.00
2-10-1	35.10	32.00	38.00
2- 8-3	42.50	.....	.....
2- 8-4	50.00	.....	.....
3- 6-1½	37.50	.....	.....
3- 8-1½	27.75	25.50	32.00
3- 8-1	36.00	34.00	39.00
3- 9-1	36.23	34.00	41.00
4- 6-2	33.50	.....	.....
4- 8-1	36.75	33.00	40.00
4- 8-4	54.00	.....	.....
4- 9-1	38.19	33.00	44.00
4-10-3	49.50	48.00	51.00
5- 3-1	38.50	.....	.....
5- 4-1	41.50	40.00	42.00
5- 6-1	42.00	.....	.....
5- 4-2	45.75	.....	.....
5- 8-1	43.36	39.00	50.00
5- 8-4	65.00	.....	.....
6- 4-2	52.00	.....	.....
7- 6-1	49.00	.....	.....
10- 5-1	59.00	.....	.....
12- 5-1	66.00	.....	.....

A rough "valuation" may be made by valuing nitrogen as

Nitrates at.....	26 cents
Ammonia at.....	29 "
Organic.....	25 "
Available phosphoric acid at.....	6½ cents
Water-soluble potash.....	28½ "

ANALYSES REQUIRING SPECIAL NOTICE.

8910. The American Ag'l. Chem. Co.'s Complete Manure for Top Drèssing 1916 was found below guaranty in nitrogen. A second sample, **9345**, taken from a different source, was analyzed with approximately the same results.

8909. The above company's Sure Growth Phosphate being somewhat below guaranty in potash, a second sample, **9344**, of this brand from a different source was found to meet fully its guaranty.

A similar result appears in the two analyses of Bradley's Patent Superphosphate, 1916, Nos. **8977** and **9346**.

9213. Armour Fertilizer Co.'s Bidwell's 3-8-1, having considerably less nitrogen than was guaranteed, the manufacturer requested the analysis of another sample, but it was not possible at that time to find the brand on sale in the State.

9032. Coe-Mortimer Co.'s New Englander Special 1916, being found deficient in both nitrogen and potash, effort was made without success to find for analysis another sample.

9405. National Extra High Grade Potato Fertilizer showed deficiencies in all three ingredients and we were unable to get another sample from a different source for analysis.

9040. The Royster Guano Co.'s Dreadnaught Fertilizer, having been found deficient in potash, a second sample, **9282**, was drawn from a different source, which showed more potash, 1.86 per cent., the guaranty being 2 per cent.

9068. Quinnipiac Wrapper Leaf Brand Tobacco Manure, without Potash, not meeting its nitrogen guaranty, a second sample was analyzed, **9319**, which fully met the guaranty.

8997. Rogers H. G. Soluble Tobacco Manure failing to meet its guaranty of available phosphoric acid, a second sample, **9347**, drawn from a different source, was analyzed but agreed in composition with the first sample. It will be noticed that most of the superphosphates without potash made by this firm, while fully meeting their guaranties in all other respects, fail to meet them in the one particular of "available" phosphoric acid. The manufacturer states that the phosphatic material used is precipitated bone mixed with fine bone sawings; that the amount of available phosphoric acid found in these materials when separately analyzed should yield fully the amount guaranteed in the mixture of them; but that this is not the case and that there are large discrepancies between the analyses of mixtures of these two ingredients reported by different trade chemists. Examination of the bone used shows the presence of a considerable amount of carbonate of lime. The presence of carbonates, we believe, in any fertilizer is likely to reduce the amount of "available" phosphoric acid found by the official method. The precipitated bone, whether alone or mixed with carbonates, is, we believe, readily available to crops.

9225. Royster's Curfew Ammoniated Superphosphate having failed to meet its nitrogen guaranty, a second sample, **9348**, drawn from a different source, was analyzed and substantially met the nitrogen guaranty. The same thing was found in Royster's Good Will Ammoniated Superphosphate, Samples **9228** and **9404**.

8907. In Sanderson's H. G. Ammoniated Phosphate the available phosphoric acid was below guaranty but in two other samples of the same brand, **9075** and **9308**, this guaranty was fully met.

TABLE I.—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling	Dealer's cash price per ton.
<i>Sampled by Station:</i>			
	American Agricultural Chemical Co., New York City.		
*8910	Complete Manure for Top Dressing 1916.	Milford.	\$43.75
*9345	Complete Manure for Top Dressing 1916.	Hazardville.	43.75
*8909	Sure Growth Phosphate 1916.	Hazardville.	36.75
*9344	Sure Growth Phosphate 1916.	Thompsonville.	36.00
9212	Triumph Crop Special.	Milford.	.....
9291	Bradley's B. D. Sea Fowl Guano 1916.	Middletown.	35.00
8978	Bradley's Complete Manure for Potatoes and Vegetables 1916.	Norwalk.	37.50
9181	Bradley's Corn Phosphate 1916.	South Coventry.	.....
9182	Bradley's Half Century Fertilizer 1916.	Canaan.	35.00
9305	Bradley's New Method Fertilizer 1916.	Canaan.	31.00
*8977	Bradley's Patent Superphosphate 1916.	Suffield.	34.00
*9346	Bradley's Patent Superphosphate 1916.	Thompsonville.	34.00
8976	Bradley's Potato Fertilizer 1916.	Groton.	35.00
9183	Bradley's Potato Manure 1916.	Suffield.	30.00
8979	Bradley's Tobacco Manure 1916.	Glastonbury.	40.25
9047	Bradley's Tobacco Manure (Carb.).	Hartford.	.....
9294	Bradley's Unicorn 1916.	Cos Cob.	33.00
9185	East India Corn King 1916.	Southport.	34.00
9187	East India Potato and Garden Manure.	Burnside.	37.00
9184	East India Roanoke Phosphate 1916.	Southport.	31.00
9288	East India Tobacco Special 1916.	Burnside.	39.00
9186	East India Unexcelled Fertilizer 1916.	Southport.	33.00
9189	Quinnipiac Ammoniated Dissolved Bone 1916.	Branford.	31.00
9236	Quinnipiac B Fertilizer 1916.	Shelton.	35.00
9188	Quinnipiac Climax Phosphate 1916.	Milford.	30.00
9320	Quinnipiac Climax Phosphate 1916.	East Haven.	.....
9190	Quinnipiac Fish and Potash Mixture 1916.	Windsor.	34.00
9191	Quinnipiac Market Garden Manure 1916.	Hazardville.	37.50
8911	Quinnipiac Potato Phosphate 1916.	Branford.	32.00
9192	Quinnipiac Wrapper Leaf Brand Tobacco Manure.	Hazardville.	41.00
9295	Wheeler's Corn Fertilizer 1916.	New Milford.	32.00
9296	Wheeler's Cuban Tobacco Grower 1916.	New Milford.	44.00
9297	Wheeler's Potato Manure 1916.	New Milford.	34.00
9207	Williams and Clark's Americus Corn Phosphate 1916.	Milford.	.....
9298	Williams and Clark's Americus H. G. Special for Potatoes and Root Crops, 1916.	Southington.	39.00
9208	Williams and Clark's Americus Potato Manure.	Waterbury.	35.00
9237	Williams and Clark's Elk Brand 1916.	Waterbury.	30.00
9209	Williams and Clark's Meadow Queen Fertilizer 1916.	Milford.	.....
9210	Williams and Clark's Seed Leaf Tobacco Manure 1916.	Manchester.	.....
9304	Williams and Clark's Special Prolific Crop Producer	Norfolk.	30.00
Apothecaries Hall Co., Waterbury, Conn.			
9286	Victor Tobacco Special.	Wapping.	42.00

* See page 392.

WITH POTASH.

Nitrogen.		Phosphoric Acid.								Potash.			Station No.			
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total		Water-soluble.	Citrate-soluble.	Citrate-insoluble	Total.		So-called "Available"		As Minute.	Total.	Guaranteed.	
Found.	Guaranteed.	Found.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	As Minute.	Total.	Guaranteed.	
0.94	0.98	0.20	1.68	3.80	4.11	6.26	3.52	0.67	10.45	9.0	9.78	8.0	1.01	1.01	1.0	8910
1.03	0.99	0.16	1.66	3.84	4.11	5.75	3.48	0.51	9.74	9.0	9.23	8.0	0.90	1.19	1.0	9345
0.60	0.84	0.42	0.84	2.70	2.47	6.01	4.02	1.19	11.22	10.0	10.03	9.0	0.65	0.71	1.0	8909
0.38	1.07	0.24	1.15	2.84	2.47	6.08	3.91	1.04	11.03	10.0	9.99	9.0	0.40	1.14	1.0	9344
1.18	0.04	0.48	0.79	2.49	2.47	4.96	3.32	1.37	9.65	9.0	8.28	8.0	2.94	2.94	3.0	9212
0.24	0.12	0.09	0.49	0.94	0.82	5.83	4.51	1.20	11.54	11.0	10.34	10.0	0.51	0.85	1.0	9291
1.82	0.05	0.73	0.86	3.46	3.29	5.52	3.96	1.97	11.45	10.0	9.48	9.0	1.07	1.07	1.0	8978
0.46	0.50	0.32	0.49	1.77	1.65	5.83	4.76	1.13	11.72	11.0	10.59	10.0	1.07	1.07	1.0	9181
0.41	0.44	0.49	0.60	1.94	2.06	5.26	5.39	1.75	12.40	11.0	10.65	10.0	1.00	1.00	1.0	9182
0.07	0.08	0.56	0.22	0.93	0.82	6.51	2.46	1.09	10.06	9.0	8.97	8.0	0.80	1.02	1.0	9305
0.14	0.58	0.34	1.00	2.06	2.06	5.50	4.16	0.87	10.53	9.0	9.66	8.0	0.70	0.76	1.0	8977
0.26	0.33	0.27	1.22	2.08	2.06	5.10	4.49	0.90	10.49	9.0	9.59	8.0	0.96	0.96	1.0	9346
0.53	0.76	0.61	0.56	2.46	2.06	4.35	5.09	1.36	10.80	9.0	9.44	8.0	0.70	1.01	1.0	8976
0.63	0.56	0.29	1.07	2.55	2.47	6.11	4.60	0.79	11.50	10.0	10.71	9.0	1.03	1.03	1.0	9183
0.87	0.05	0.09	3.43	4.44	4.53	1.56	2.85	0.43	4.84	4.0	4.41	3.0	0.25	1.10	1.0	8979
0.60	0.11	1.12	2.89	4.72	4.53	0.33	3.16	0.28	3.77	4.0	3.49	3.0	0.80	\$2.92	3.0	9047
0.17	0.88	0.38	0.70	2.13	1.65	7.01	3.55	1.57	12.13	10.0	10.56	9.0	0.40	0.76	1.0	9294
0.60	0.55	0.44	0.77	2.36	2.47	6.46	4.17	0.97	11.60	10.00	10.63	9.00	1.01	1.01	1.0	9185
0.97	1.04	0.58	0.90	3.49	3.29	5.28	4.17	2.03	11.48	10.0	9.45	9.0	1.06	1.06	1.0	9187
0.21	0.20	0.21	0.96	1.58	1.23	6.88	4.12	1.68	12.68	11.0	11.00	10.0	1.00	1.00	1.0	9184
0.88	0.08	0.18	3.37	4.51	4.53	2.15	1.56	0.49	4.20	4.0	3.71	3.0	0.11	1.15	1.0	9288
0.21	0.50	0.25	0.84	1.80	2.06	5.70	4.02	1.27	10.99	9.0	9.72	8.0	0.66	0.66	1.0	9186
0.12	0.15	0.51	0.93	1.71	1.65	1.94	8.64	1.74	12.32	10.0	10.58	9.0	1.26	1.26	1.0	9189
0.38	0.12	0.42	0.45	1.37	1.23	6.10	4.64	1.75	12.49	11.0	10.74	10.0	0.91	0.91	1.0	9236
1.06	1.16	0.54	0.89	3.65	0.82	6.07	3.75	0.93	10.75	9.0	9.82	8.0	1.07	1.07	1.0	9188
0.23	0.17	0.64	1.04	0.82	4.20	4.78	0.97	9.95	9.0	8.98	8.0	0.90	1.02	1.0	9320	
0.55	0.60	0.57	0.76	2.48	2.47	5.21	4.46	1.56	11.23	10.0	9.67	9.0	0.95	0.95	1.0	9190
1.05	1.10	0.48	0.78	3.41	3.29	5.85	3.94	0.96	10.75	10.0	9.79	9.0	1.09	1.09	1.0	9191
0.18	0.30	0.54	1.72	2.74	2.06	1.22	7.78	1.80	10.80	9.0	9.00	8.0	1.07	1.07	1.0	8911
1.18	0.06	0.08	3.10	4.42	4.53	2.46	1.55	0.63	4.64	4.0	4.01	3.0	0.20	1.04	1.0	9192
0.30	0.25	0.26	0.64	1.45	1.65	5.45	4.68	0.96	11.09	11.0	10.13	10.0	1.09	1.09	1.0	9295
1.22	0.04	0.26	3.08	4.60	4.53	2.46	1.48	0.50	4.44	4.0	3.94	3.0	0.20	1.00	1.0	9296
1.25	0.35	0.48	0.86	2.94	2.06	6.45	4.09	1.01	11.55	11.0	10.54	10.0	0.45	0.45	1.0	9297
0.54	0.22	0.57	0.58	1.91	1.65	5.58	4.91	1.73	12.22	11.0	10.49	10.0	1.00	1.00	1.0	9207
0.91	0.88	0.63	0.73	3.15	3.29	6.46	3.80	0.86	11.12	10.0	10.26	9.0	0.91	1.01	1.0	9298
0.34	0.24	0.24	1.14	1.96	2.06	4.69	4.53	0.95	10.17	9.0	9.22	8.0	0.92	0.92	1.0	9208
0.16	0.08	0.17	0.47	0.88	0.82	7.91	5.00	0.88	13.79	11.0	12.91	10.0	1.00	1.00	1.0	9237
0.89	0.43	0.47	0.77	2.56	2.47	5.00	4.79	1.65	11.44	10.0	9.79	9.0	0.91	0.91	1.0	9209
0.95	0.10	0.00	3.25	4.30	4.53	1.56	1.93	0.35	3.84	4.0	3.49	3.0	0.20	1.09	1.0	9210
0.43	0.05	0.19	0.65	1.32	0.82	5.73	3.39	1.59	10.71	9.0	9.12	8.0	0.96	0.96	1.0	9304
0.17	1.69	0.52	1.76	4.14	4.11	2.63	1.36	0.51	4.50	5.0	3.99	4.0	1.06	1.06	1.0	9286

80.83% as sulphate, 1.29% as carbonate.

TABLE I.—NITROGENOUS SUPERPHOSPHATES

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station:</i>			
Armour Fertilizer Works, Chrome, N. J.			
9115	Grain Grower, 2-8-2 Fertilizer.....	Rockville.....	\$35.00
9116	Special Tobacco Grower No. 1, 5-4-1 Fertilizer.....	Hazardville.....	42.00
9117	Wheat, Corn, Oats Special, 1-7-1 Fertilizer.....	Bridgeport.....	29.00
†*9213	Bidwells 3-8-1.....	Windsor Locks.....	34.00
†8980	1-8-2 Fertilizer.....	Bridgeport.....	34.00
8981	2-8-3 Fertilizer.....	Hazardville.....	42.50
9214	2½-8-1.....	Thompsonville.....	35.00
9215	3-8-1.....	Norwalk.....	39.00
9114	4-8-1.....	Manchester.....	38.00
†9299	5-8-4 Fertilizer.....	Orange.....	65.00
†9290	7-6-1 Fertilizer.....	New London.....	48.00
Bowker Fertilizer Co., New York City.			
8982	All Round Fertilizer 1916.....	Meriden.....	34.00
9241	Ammoniated Food for Flowers.....	Waterbury.....	*
†9240	Complete.....	Middale.....	51.00
9239	Corn Phosphate 1916.....	West Stafford.....	38.00
8912	Farm and Garden Phosphate 1916.....	New Haven.....	36.00
8983	Stockbridge General Crop Manure 1916.....	Yalesville.....	44.00
9217	Hill and Drill Phosphate 1916.....	Yalesville.....	41.00
9242	Lawn and Garden Dressing 1916.....	New Haven.....	50.00
9238	Stockbridge Early Crop Manure 1916.....	West Stafford.....	43.00
9216	Sure Crop Phosphate 1916.....	Waterbury.....	.....
E. D. Chittenden Co., Bridgeport, Conn.			
9243	Complete Tobacco and Onion Grower, 2% Potash.....	Broad Brook.....	.....
9244	Connecticut Tobacco Grower.....	Broad Brook.....	.....
9302	Connecticut Tobacco Grower.....	Suffield.....	52.00
9245	Tobacco Special, 2% Potash.....	Suffield.....	50.00
Coe-Mortimer Co., New York City.			
9246	Columbian Corn and Potato Fertilizer 1916.....	Milford.....	30.00
9247	Gold Brand Excelsior Guano 1916.....	Washington Depot.....	38.00
9292	H. G. Potato Fertilizer Revised.....	Greenwich.....	48.00
\$9032	New Englander Special 1916.....	Brooklyn.....	28.00
†9293	Red Brand Excelsior Guano 1916.....	Greenwich.....	48.00
9254	Standard Potato Fertilizer 1916.....	Wethersfield.....	31.35
T. H. Eldredge, Norwich, Conn.			
8913	Fish and Potash.....	Norwich.....	32.00
International Agricultural Corporation, Buffalo, N. Y.			
9258	Buffalo Economy.....	West Suffield.....	34.68
9255	Buffalo General Favorite.....	East Granby.....	.....

* See page 392.

† See page 387.

‡ See page 390.

§ See page 393.

WITH POTASH—(Continued).

Nitrogen.						Phosphoric Acid.						Potash.					
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Found.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.	Found.	Guaranteed.	So-called "Available"	As Muriate.	Total.	Guaranteed.	Station No.	
0.13	0.28	0.34	1.01	1.76	1.65	2.78	5.36	1.28	9.42	8.5	8.14	8.0	1.96	1.96	2.0	9115	
0.18	0.10	0.77	3.16	4.21	4.11	3.12	1.64	0.72	5.48	4.5	4.76	4.0	0.20	1.07	1.0	9116	
0.03	0.08	0.25	0.56	0.92	0.82	4.54	2.82	0.81	8.17	7.5	7.36	7.0	0.70	1.02	1.0	9117	
0.17	0.55	0.51	0.95	2.18	2.47	4.48	3.26	1.16	8.90	8.5	7.74	8.0	0.20	1.00	1.0	9213	
0.05	0.05	0.25	0.55	0.90	0.82	4.52	3.79	0.86	9.17	8.5	8.31	8.0	1.14	2.04	2.0	8980	
0.19	0.24	0.40	0.90	1.73	1.65	3.45	4.48	1.18	9.11	8.5	7.93	8.0	3.04	3.04	3.0	8981	
0.26	0.16	0.26	1.48	2.16	2.06	4.46	3.52	1.32	9.30	8.5	7.98	8.0	1.00	1.00	1.0	9214	
0.24	0.21	0.99	1.28	2.72	2.47	4.02	3.54	1.69	9.25	8.5	7.56	8.0	0.51	1.04	1.0	9215	
0.63	0.22	0.47	2.02	3.34	3.29	5.04	3.11	0.75	8.90	8.5	8.15	8.0	1.07	1.07	1.0	9114	
1.20	0.12	0.56	1.88	3.76	4.11	4.61	2.84	0.87	8.32	8.5	7.45	8.0	3.64	3.64	4.0	9299	
1.55	0.57	0.43	2.37	4.92	5.76	4.30	1.94	0.64	6.88	6.5	6.24	6.0	1.07	1.07	1.0	9290	
0.16	0.90	0.54	0.85	2.45	2.06	6.57	3.54	1.84	11.95	11.0	10.11	10.0	0.85	1.01	1.0	8982	
2.68	0.03	0.19	—	2.90	2.47	0.41	5.93	1.50	7.84	7.0	6.34	6.0	2.11	2.79	2.0	9241	
0.10	1.18	0.34	0.98	2.60	3.29	6.92	3.05	0.96	10.93	11.0	9.97	10.0	2.02	2.02	3.0	9240	
0.50	0.38	0.54	0.34	1.76	1.65	6.30	4.52	1.45	12.27	11.0	10.82	10.0	0.75	0.98	1.0	9239	
...	0.48	0.38	1.08	1.94	1.65	6.56	4.09	0.95	11.60	11.0	10.65	10.0	1.17	1.17	1.0	8912	
...	1.72	0.62	0.94	3.28	3.29	7.78	2.57	0.95	11.30	10.0	10.35	9.0	0.87	0.87	1.0	8983	
0.19	0.95	0.33	1.01	2.48	2.47	6.44	3.52	0.97	10.93	10.0	9.96	9.0	1.13	1.13	1.0	9217	
3.32	0.05	0.25	1.02	4.64	4.11	5.11	3.34	0.35	8.80	9.0	8.45	8.0	1.00	1.00	1.0	9242	
1.32	1.43	1.11	0.32	4.18	4.11	4.07	4.07	1.42	9.56	9.0	8.14	8.0	1.11	1.11	1.0	9238	
0.18	0.20	0.18	0.48	1.04	0.82	5.26	5.33	1.00	11.59	11.0	10.59	10.0	0.71	1.00	1.0	9216	
0.16	1.90	0.15	1.09	3.30	3.29	7.80	1.63	0.65	10.08	9.0	9.43	8.0	1.11	1.99	2.0	9243	
0.12	2.94	0.31	1.38	4.75	4.95	3.75	1.14	0.38	5.27	5.0	4.89	4.0	0.20	2.07	2.0	9244	
0.18	3.02	0.13	1.62	4.95	4.94	3.83	0.89	0.32	5.04	5.0	4.72	4.0	0.20	1.94	2.0	9302	
0.11	2.56	0.20	1.65	4.52	4.50	3.43	0.70	0.27	4.40	4.0	4.13	3.0	0.15	2.02	2.0	9245	
0.24	0.28	0.48	0.50	1.50	1.23	6.12	4.60	1.61	12.33	11.0	10.72	10.0	1.02	1.02	1.0	9246	
0.91	0.44	0.50	0.69	2.54	2.47	5.85	4.41	1.43	11.60	10.0	10.26	9.0	0.80	0.97	1.0	9247	
0.27	1.65	0.20	1.07	3.19	3.29	7.77	2.88	0.42	11.07	11.0	10.65	10.0	3.01	3.01	3.0	9292	
0.43	0.62	0.48	0.42	1.95	0.82	4.83	5.00	1.30	11.13	9.0	9.83	8.0	0.20	0.55	1.0	9032	
0.91	1.12	0.37	1.18	3.58	4.11	4.63	3.44	0.92	8.99	9.0	8.07	8.0	0.88	0.88	1.0	9293	
1.12	1.20	0.34	0.71	3.37	3.29	4.70	4.32	1.04	10.06	10.0	9.02	9.0	0.86	0.86	1.0	9254	
0.92	0.28	0.30	1.34	2.84	2.40	7.09	2.57	2.01	11.67	9.0	9.66	8.0	0.31	0.41	0.5	8913	
0.73	0.05	0.26	0.64	1.68	1.60	5.58	4.51	1.60	11.60	11.0	10.09	10.0	1.07	1.07	1.0	9258	
0.66	0.18	0.08	0.53	1.45	0.80	3.80	4.25	1.46	9.51	9.0	8.05	8.0	1.07	1.07	1.0	9255	

TABLE I.—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
	<i>Sampled by Station:</i>		
9257	International Agricultural Corp., Buffalo, N. Y. (Con.)		
9256	Buffalo High Grade Manure.....	Stafford Springs.....	\$33.00
8984	Buffalo Potash Special.....	West Cheshire.....	35.75
	Buffalo Potato and Corn.....	Waterbury.....	50.00
	Kirke Chemical Co., Brooklyn, N. Y.		
8985	Kirke Fertilizer.....	Greenwich.....	\$
	Lister's Agricultural Chemical Works, Newark, N. J.		
9300	Ammoniated Dissolved Superphosphate 1916.....	Branford.....	32.00
9262	Complete Tobacco Manure 1916.....	West Suffield.....	40.00
8986	Corn and Potato Fertilizer 1916.....	West Suffield.....	31.00
9263	Potato Manure 1916.....	Burnside.....	42.00
9260	Special Tobacco Fertilizer 1916.....	Brookfield.....	33.00
9261	Standard Pure Superphosphate of Lime 1916.....	Burnside.....	35.00
9259	Success Fertilizer 1916.....	East Canaan.....	29.00
	Lowell Fertilizer Co., Boston, Mass.		
9264	Superior Fertilizer.....	Wethersfield.....	37.05
	E. Manchester and Sons, Winsted, Conn.		
9265	1917 Special.....	Ellington.....	39.00
	The Mapes Formula and Peruvian Guano Co., New York City.		
8987	Corn Manure 1916 Brand.....	Middletown.....	36.00
9033	General Special 1916 Brand.....	Windsor Locks.....	50.00
9034	Potato Manure 1916 Brand.....	Suffield.....	41.00
9403	Tobacco Manure 1916 Brand.....	Hartford.....	59.00
8914	Tobacco Starter Improved.....	Windsor Locks.....	42.00
9119	Top Dresser Half Strength 1916 Brand.....	Hartford.....	42.00
9118	Top Dresser Full Strength 1916 Brand.....	Hartford.....	66.00
	National Fertilizer Co., New York City.		
8915	Complete Root and Grain Fertilizer 1916.....	Thompsonville.....	39.50
9121	Eureka Potato Fertilizer 1916.....	So. Manchester.....	38.25
9037	Extra H. G. Manure 1916.....	Warehouse Point.....	41.75
†*9405	Extra H. G. Potato Fertilizer.....	West Cheshire.....	54.00
9036	Potato Phosphate 1916.....	Guilford.....	.....
8916	Tobacco Special 1916.....	Warehouse Point.....	39.48
9035	Universal Phosphate 1916.....	Wallingford.....	30.00
9120	XXX Fish and Potash 1916.....	Wallingford.....	30.00
	Olds and Whipple, Hartford, Conn.		
9038	Complete Corn, Potato and Onion Fertilizer.....	Silver Lane.....	33.50
9268	Complete Tobacco Fertilizer.....	Hartford.....	42.50

*See page 393.

†See page 387.

\$ 30 cts. per package.

WITH POTASH—(Continued.)

In Nitrates.	Nitrogen.				Phosphoric Acid.								Potash.			Station No.
	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Found.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.	Guaranteed.	So-called "Available"	Found.	Guaranteed.	As Muriate.	Total.	Guaranteed.
2.06	0.19	0.79	0.58	3.62	3.30	2.66	6.63	2.57	II.86	9.0	9.29	8.0	2.03	2.03	1.0	9257
0.19	0.05	0.28	0.50	1.02	0.80	3.24	5.32	1.71	II.27	9.0	8.56	8.0	1.90	1.90	3.0	9256
0.61	0.21	0.40	0.48	1.70	1.60	2.04	6.54	0.82	9.40	9.0	8.58	8.0	3.90	3.90	4.0	8984
5.03	0.02	0.14	0.07	5.26	5.00	8.28	1.97	0.46	II.71	8.3	10.25	7.5	3.05	3.05	3.15	8985
0.77	0.14	0.55	0.59	2.05	2.06	3.52	4.31	2.39	II.22	9.0	7.83	8.0	0.31	0.93	1.0	9300
1.38	0.10	0.39	1.97	3.84	4.11	2.32	2.72	1.42	6.46	5.0	5.04	4.0	0.31	0.97	1.0	9262
0.71	0.22	0.63	0.69	2.25	2.06	1.57	6.13	2.65	II.35	9.0	7.70	8.0	1.03	1.03	1.0	8986
0.74	1.28	1.53	0.72	4.27	4.11	4.24	4.11	1.82	II.17	9.0	8.35	8.0	0.23	1.08	1.0	9263
0.86	0.08	0.60	0.68	2.22	2.06	4.46	5.49	2.65	II.60	II.0	9.95	10.0	0.47	1.36	1.0	9260
0.60	0.34	0.79	0.90	2.63	2.47	4.69	4.23	2.57	II.49	II.0	8.92	9.0	1.02	1.02	1.0	9261
0.14	0.25	0.33	0.67	1.39	1.23	5.26	6.06	0.86	II.18	II.0	II.32	II.0	0.87	0.87	1.0	9259
0.51	1.79	0.55	0.68	3.53	3.69	6.24	3.01	0.50	9.75	II.0	9.25	9.0	1.14	1.14	1.0	9264
2.07	0.23	0.65	1.42	4.37	4.11	2.38	5.76	2.03	II.17	.....	8.14	8.0	0.68	0.93	1.0	9265
1.92	0.01	0.13	0.62	2.68	2.47	3.17	4.63	2.93	II.73	II.0	7.80	8.0	0.51	1.34	1.0	8987
4.54	0.02	0.07	1.13	5.76	5.76	2.07	4.74	2.81	9.62	8.0	6.81	6.0	0.60	1.20	1.0	9033
3.52	0.06	0.04	0.40	4.02	3.71	5.31	3.61	1.37	II.29	8.0	8.92	8.0	0.45	0.92	1.0	9034
4.69	0.11	0.83	2.59	8.22	8.23	0.16	5.34	2.70	8.20	8.0	5.50	5.0	0.80	1.53	1.0	9403
3.10	0.02	0.21	1.25	4.58	4.12	2.21	4.50	2.64	9.35	8.0	6.71	6.0	0.33	0.96	1.0	8914
4.76	0.05	0.00	0.20	5.01	4.94	0.63	2.15	1.45	4.23	4.0	2.78	2.5	0.51	1.31	0.5	9119
9.20	0.04	0.19	0.59	10.02	9.88	0.94	5.23	1.97	8.14	8.0	6.17	5.0	1.31	2.00	1.0	9118
1.05	1.05	0.52	1.02	3.64	3.29	5.73	4.09	0.87	II.69	II.0	9.82	9.0	1.00	1.00	1.0	8915
0.45	0.66	0.56	0.94	2.61	2.47	6.11	4.15	0.88	II.14	II.0	10.26	9.0	0.86	0.99	1.0	9121
1.26	1.39	0.84	0.61	4.10	4.11	5.53	3.65	0.95	II.13	9.0	9.18	8.0	0.97	0.97	1.0	9037
1.08	1.02	0.37	1.51	3.98	4.11	5.78	3.98	0.74	II.50	II.0	9.76	10.0	2.62	2.62	4.0	9405
0.16	0.61	0.27	0.87	1.91	2.06	4.67	4.56	1.16	II.39	9.0	9.23	8.0	1.02	1.02	1.0	9036
1.12	0.08	0.27	3.12	4.59	4.53	1.46	2.53	0.40	4.39	4.0	3.99	3.0	0.20	1.21	1.0	8916
0.26	0.18	0.21	0.39	1.04	0.82	6.11	5.31	0.91	II.33	II.0	11.42	10.0	0.71	0.93	1.0	9035
0.46	0.25	0.38	1.10	2.19	2.06	6.30	4.50	1.52	II.32	II.0	10.80	10.0	1.03	1.03	1.0	9120
1.18	0.07	0.55	1.85	3.65	3.30	0.31	6.54	1.07	7.92	6.0	6.85	6.0	1.13	2.09	2.0	9038
1.04	0.10	0.23	3.39	4.76	4.50	1.19	2.33	0.37	3.89	3.0	3.52	3.0	0.11	1.49	1.0	9268

TABLE I—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station:</i>			
	Olds & Whipple, Hartford, Conn. (Continued.)		
9049	Complete Tobacco Fertilizer.....	Hartford.....	
9050	Complete Tobacco Fertilizer.....	Hartford.....	
9051	Complete Tobacco Fertilizer.....	Hartford.....	
9269	Fish and Potash.....	Ellington.....	\$37.50
Rogers and Hubbard Co., Portland, Conn.			
†9039	Hubbard's Bone Base Soluble Potato Manure.....	Branford.....	50.00
9271	Hubbard's Tobacco Special.....	Portland.....	
9272	Rogers' H. G. Soluble Tobacco and Potato Manure	Somers.....	47.00
9273	Rogers' H. G. Tobacco Grower (Vegetable Formula)	Granby.....	41.00
F. S. Royster Guano Co., Baltimore, Md.			
9289	Arrow Head Tobacco Fertilizer.....	Hockanum.....	45.25
*9040	Dreadnaught Fertilizer.....	Madison.....	36.00
†9282	Dreadnaught Fertilizer.....	New Britain.....	42.00
9274	Drillwell Phosphate.....	Madison.....	35.00
†8918	Logical Compound.....	West Suffield.....	
8917	Pipe of Peace Tobacco Fertilizer.....	Glastonbury.....	38.50
8919	Sensation Fertilizer.....	Plainville.....	40.00
9275	Trucker's Delight.....	Madison.....	54.00
9041	True Blue Compound.....	Windsor.....	
Sanderson Fertilizer and Chemical Co., New Haven, Conn.			
9043	Atlantic Coast Bone, Fish and Potash 1916.....	Plainville.....	36.00
8808	Complete Tobacco Grower 1916.....	Glastonbury.....	41.00
9277	Corn Superphosphate 1916.....	East Hampton.....	33.00
9042	Formula A.....	Guilford.....	38.00
9276	Formula B.....	Bloomfield.....	
9283	Kelsey's Bone, Fish and Potash 1916.....	Branford.....	33.25
9278	Potato Manure.....	Stafford Springs.....	35.00
9301	Top Dressing for Grass and Grain 1916.....	East Hartford.....	
Virginia-Carolina Chemical Co., New York City.			
9056	Indian Brand for Tobacco No. 1.....	Hazardville.....	
9057	Indian Brand for Tobacco No. 1.....	Southwick, Mass.....	
9058	Indian Brand for Tobacco No. 1.....	Windsor Locks.....	
9059	Indian Brand for Tobacco No. 1.....	Weatogue.....	
9284	Indian Brand for Tobacco No. 2 (Sulph.).....	Hazardville.....	42.00
9285	Owl Brand Potato and Truck Fertilizer with 1% Potash.....	Shelton.....	34.00
8920	XXXX Fish and Potash Mixture.....	Bristol.....	33.00
Wilcox Fertilizer Co., Mystic, Conn.			
8887	Fish and Potash.....	Meriden.....	25.50
9124	H. G. Vegetable Fertilizer.....	Ellington.....	39.00

WITH POTASH—(Continued).

Nitrogen.										Phosphoric Acid.										Potash.			
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Found.	Guaranteed.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.	Guaranteed.	So-called "Available."	Found.	Guaranteed.	As Muriate.	Total.	Guaranteed.	Station No.					
0.71	0.09	0.54	3.58	4.92	4.50	0.66	2.75	0.42	3.83	3.0	3.41	3.0	0.31	2.45	2.0	9049							
0.49	0.06	0.96	3.42	4.93	4.50	0.81	2.75	0.43	3.99	3.0	3.56	3.0	0.31	2.31	2.0	9050							
.....	.....	.....	.....	4.60	4.50	.....	.....	.....	3.88	3.0	.....	3.0	0.31	2.36	2.0	9051
0.55	0.12	0.49	1.72	2.88	2.45	0.56	5.98	2.11	8.65	6.0	6.54	6.0	1.75	2.62	2.0	9269							
1.63	0.95	0.82	0.96	4.36	4.25	0.11	8.27	4.72	13.10	12.0	8.38	10.0	0.20	0.93	1.0	9039							
1.79	0.13	0.37	3.06	5.35	5.00	0.34	3.94	0.50	4.78	5.0	4.28	4.0	0.20	0.88	0.5	9271							
1.64	1.19	0.54	0.94	4.31	4.25	0.09	8.27	4.94	13.30	12.0	8.36	10.0	0.20	1.02	1.0	9272							
1.41	0.09	0.12	3.53	5.15	5.00	0.30	3.97	1.51	5.78	5.0	4.27	4.0	0.11	0.93	0.5	9273							
0.24	0.71	0.19	2.80	3.94	4.11	2.15	2.02	0.82	4.99	4.5	4.17	4.0	0.20	1.96	2.0	9289							
0.13	0.79	0.40	0.70	2.02	1.65	5.15	3.34	0.72	9.21	8.5	8.49	8.0	0.40	1.62	2.0	9040							
0.69	0.27	0.33	0.45	1.74	1.65	5.47	2.62	1.20	9.29	8.5	8.09	8.0	0.25	1.86	2.0	9282							
0.21	1.17	0.46	0.96	2.80	2.47	5.37	2.99	0.67	9.03	8.5	8.36	8.0	0.20	0.84	1.0	9274							
.....	0.55	0.60	0.79	1.94	1.65	5.45	2.69	0.65	8.79	8.5	8.14	8.0	0.20	0.97	1.0	8918							
0.17	0.83	0.33	2.61	3.94	4.11	1.58	1.36	0.19	3.13	3.5	2.94	3.0	0.25	1.03	1.0	8917							
0.48	0.72	0.58	1.63	3.41	3.29	6.22	2.25	0.70	9.17	8.5	8.47	8.0	0.40	1.07	1.0	8919							
0.18	1.37	0.82	1.18	3.55	3.29	4.17	4.14	0.86	9.17	8.5	8.31	8.0	0.55	3.64	4.0	9275							
0.12	1.28	0.71	1.27	3.38	3.29	4.97	4.10	0.60	9.67	8.5	9.07	8.0	0.60	2.71	3.0	9041							
0.20	0.30	0.38	0.97	1.85	1.65	1.13	8.36	2.96	12.45	10.0	9.49	9.0	0.90	0.90	1.0	9043							
1.00	0.14	0.06	3.31	4.51	4.53	0.61	3.03	0.49	4.13	4.0	3.64	3.0	0.31	1.04	1.0	8908							
0.31	0.21	0.49	1.38	2.39	1.65	5.30	4.54	1.71	11.55	11.0	9.84	10.0	0.85	1.06	1.0	9277							
0.50	0.61	0.71	1.49	3.31	3.29	6.76	3.73	3.13	13.62	10.0	10.49	9.0	0.90	1.13	1.0	9042							
1.51	0.11	0.53	1.27	3.42	3.29	4.50	5.25	3.66	13.41	10.0	9.75	9.0	0.31	0.95	1.0	9276							
0.93	0.06	0.56	1.16	2.71	2.47	4.89	5.67	0.79	11.35	10.0	10.56	9.0	0.20	0.87	1.0	9283							
0.20	0.12	0.72	1.56	2.60	2.06	1.77	7.18	1.83	10.78	9.0	8.95	8.0	1.21	1.21	1.0	9278							
2.20	0.06	0.54	1.45	4.25	4.11	3.69	4.85	1.50	10.04	9.0	8.54	8.0	1.66	1.66	1.0	9301							
0.25	2.24	0.21	1.96	4.66	4.11	3.84	1.19	0.55	5.58	5.0	5.03	4.0	0.20	1.93	2.0	9056							
.....	.....	.....	.....	4.48	4.11	.....	.....	.....	5.54	5.0	.....	4.0	0.20	1.98	2.0	9057
.....	.....	.....	.....	4.48	4.11	.....	.....	.....	5.80	5.0	.....	4.0	0.20	1.96	2.0	9058
0.19	1.87	0.50	2.02	4.58	4.11	3.25	1.60	0.70	5.55	5.0	4.85	4.0	1.00	1.00	1.0	9284							
0.14	0.68	0.16	0.77	1.75	1.65	5.94	2.62	1.27	9.83	9.0	8.56	8.0	1.05	1.05	1.0	9285							
.....	0.68	0.41	0.81	1.90	1.65	6.55	2.71	1.50	10.76	9.0	9.26	8.0	0.94	0.94	1.0	8920							
0.66	0.26	1.96	2.88	2.40	6.73	2.44	1.89	1.06	9.0	9.17	8.0	0.31	0.39	0.5	8887								
0.94	0.08	1.44	1.62	4.08	4.12	6.12	2.81	0.54	9.47	9.0	8.93	8.0	0.76	0.76	1.0	9124							

TABLE I.—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station:</i>			
	Wilcox Fertilizer Co., Mystic, Conn. (Continued.)		
9303	Potato Fertilizer.....	Suffield.....	\$33.00
9122	Potato, Onion and Vegetable Phosphate.....	Guilford.....	36.00
9123	Tobacco Special.....	Ellington.....	40.00
S. D. Woodruff & Sons, Orange, Conn.			
9125	Home Mixture.....	Orange.....	36.00
<i>Sampled by Purchasers and Others:</i>			
8703	Quinnipiac Wrapper Leaf Brand.....	Hartford;—L. B. Haas and Co.....	37.50
8704	Quinnipiac Wrapper Leaf Brand.....	Hartford;—L. B. Haas and Co.....	37.50
8705	Quinnipiac Wrapper Leaf Brand.....	Hartford;—L. B. Haas and Co.....	37.50
8833	Rogers' H. G. Tobacco Grower Vegetable Formula.	West Suffield;—H. C. Nelson.....	.....
8834	Rogers' H. G. Tobacco Grower Vegetable Formula.	West Suffield;—H. C. Nelson.....	.....
8961	Sanderson's Fish, Bone and Potash.....	West Cheshire;—Whitcomb & Hadley.....	29.75
9396	Sanderson's Kelsey's Bone, Fish and Potash.....	Branford;—A. E. Plant Sons' Co.....	.....
8812	Unknown brand.....	Brookfield Center;—E. A. Talmadge.....	.....
9399	Unknown brand.....	S. Windsor;—W. N. Jennings.....	.....

WITH POTASH—(Concluded.)

Nitrogen.						Phosphoric Acid.						Potash.					
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Found.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.	Found.	Guaranteed.	So-called "Available."	As Muriate.	Total.	Guaranteed.	Station No.	
.14	0.22	0.28	1.30	2.94	2.46	6.04	2.70	3.59	12.33	7.0	8.74	6.0	0.31	0.41	0.5	9303	
.01	0.10	0.48	1.43	4.02	3.72	4.62	3.89	2.01	10.52	9.0	8.51	8.0	0.40	0.63	0.5	9122	
.29	0.07	0.05	3.78	5.19	4.95	0.36	5.17	0.51	6.04	6.0	5.53	5.0	0.15	1.10	0.5	9123	
.76	0.10	1.27	1.50	3.63	3.30	5.45	2.99	0.78	9.22	....	8.44	8.0	0.62	0.62	1.0	9125
....	....	....	....	4.60	4.53	....	....	....	4.09	4.0	....	3.0	....	0.97	1.0	8730
....	....	....	....	4.59	4.53	....	....	....	4.20	4.0	....	3.0	....	0.97	1.0	8704
....	....	....	....	4.55	4.53	....	....	....	4.41	4.0	....	3.0	....	0.92	1.0	8705
....	....	....	....	5.14	5.00	....	....	....	5.31	5.0	....	4.0	0.23	1.07	0.5	8833
....	....	....	....	5.21	5.00	....	....	....	5.31	5.0	....	4.0	0.23	1.06	0.5	8834
....	....	....	....	2.16	....	....	....	12.26	....	....	....	0.89	0.89	....	....	8961
....	....	....	....	2.58	2.47	....	....	....	11.60	10.0	....	9.0	....	1.03	1.00	9396
....	....	....	....	3.52	....	....	....	....	8.12	....	....	....	....	5.14	....	8812
....	....	....	....	3.90	....	3.48	3.92	1.61	9.01	....	7.40	....	0.39	0.39	....	9399

TABLE II—NITROGENOUS SUPERPHOSPHATES

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station Agent:</i>			
American Agricultural Chemical Co., New York City.			
8964	Ammoniated Fertilizer A.....	Plantsville.....	\$25.00
9000	Ammoniated Fertilizer AA.....	East Hampton.....	29.00
8965	Ammoniated Fertilizer AAA.....	East Hampton.....	32.00
8966	Ammoniated Fertilizer AAAA.....	Milford.....	35.75
9307	Cereal and Root Fertilizer.....	Rockville.....	.....
†9306	High Grade Grass Top Dressing without Potash.....	Rockville.....	.....
9001	Odorless Grass and Lawn Top Dressing without Potash.....	Stafford Springs.....	42.00
9006	Special Vegetable Fertilizer.....	New London.....	40.00
9002	Bradley's General Fertilizer.....	Putnam.....	30.00
9064	Bradley's Grain Fertilizer.....	Norwich.....	23.00
9067	Bradley's Grass Top Dressing without Potash.....	Norwich.....	42.00
9003	Bradley's Root Crop Manure.....	Black Hall.....	35.00
8927	Bradley's Special Corn Phosphate without Potash.....	Norwich.....	28.00
9076	Bradley's Special Potato Phosphate without Potash.....	Groton.....	30.00
8928	Bradley's Special Potato Manure without Potash.....	Black Hall.....	34.00
9066	Bradley's Tobacco Manure without Potash.....	Hazardville.....	39.50
9065	Bradley's Universal Crop Phosphate.....	Ellington.....	.....
9126	East India Tobacco Special without Potash.....	Burnside.....	35.50
9004	Quinnipiac Special Corn Manure without Potash.....	New London.....	31.00
9005	Quinnipiac Special Potato Phosphate without Potash.....	Plainfield.....	28.00
*9068	Quinnipiac Wrapper Leaf Brand Tobacco Manure without Potash.....	Windsor.....	35.75
*9319	Quinnipiac Wrapper Leaf Brand Tobacco Manure without Potash.....	Windsor.....	35.75
9078	Williams and Clark's Seed Leaf Tobacco Manure without Potash.....	South Manchester.....	36.00
9069	Williams and Clark's Special Americus Corn Phosphate without Potash.....	Ellington.....	29.00
9077	Williams and Clark's Special Americus Potato Manure without Potash.....	Ellington.....	29.00
Apothecaries Hall Co., Waterbury, Conn.			
9070	Victor Corn, Fruit and All Crops.....	Windsorville.....	32.00
9079	Victor Market Gardeners Special.....	Windsorville.....	40.00
9071	Victor Potato and Vegetable Special.....	Windsorville.....	36.00
8988	Victor Tobacco Special (C. S. M.).....	Waterbury.....	38.00
9080	Victor Top Dresser for Grass and Grain.....	Windsorville.....	46.00
Armour's Fertilizer Works, Chrome, N. J.			
9169	3-10-0.....	Hazardville.....	32.25
8899	4-8-0.....	Hazardville.....	35.00
9315	5-10-0.....	New Canaan.....	40.00
9090	Special Tobacco Grower No. 2.....	Manchester.....	38.00
Atlantic Packing Co., New Haven, Conn.			
9088	Atlantic Corn and Grain Fertilizer.....	New Haven.....	28.00
9089	Atlantic Potato Phosphate.....	New Haven.....	32.00
8898	Atlantic Special Vegetable.....	Groton.....	38.00
†9316	Atlantic Tobacco Special.....	South Windsor.....	37.00
8897	Atlantic Top Dresser for Grass and Market Garden.....	Groton.....	40.00

WITHOUT POTASH.

Nitrogen.		Phosphoric Acid.										Station No.	
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Water-soluble.	Citrate-insoluble.		Total.		So-called "Available."		Station No.
				Found.	Guaranteed.			Found.	Guaranteed.	Found.	Guaranteed.		Station No.
0.16	0.14	0.33	0.49	1.12	0.82	6.16	4.49	1.29	11.94	11.0	10.65	10.0	8964
0.12	0.25	0.90	0.71	1.98	1.65	5.55	4.46	1.96	11.97	11.0	10.01	10.0	9000
0.85	0.50	0.69	0.67	2.71	2.47	5.65	4.33	1.88	11.86	11.0	9.98	10.0	8965
0.90	1.36	0.57	0.61	3.44	3.29	6.84	3.79	1.23	11.86	11.0	10.63	10.0	8966
0.59	1.02	0.47	0.61	2.69	2.47	7.09	3.85	2.07	13.01	11.0	10.94	10.0	9307
3.15	1.62	0.52	0.79	6.08	6.58	5.92	2.83	0.92	9.67	9.0	8.75	8.0	9306
2.24	1.71	0.36	0.59	4.90	4.11	7.65	2.87	0.87	11.39	11.0	10.52	10.0	9001
1.27	1.13	0.51	0.60	3.51	3.29	6.00	3.99	1.75	11.74	11.0	9.99	10.0	9006
0.52	0.46	0.48	0.38	1.84	1.65	5.71	4.00	1.87	11.58	11.0	9.71	10.0	9002
0.44	0.35	0.10	0.23	1.12	0.82	5.64	4.73	0.56	10.93	11.0	10.37	10.0	9064
2.61	1.45	0.38	0.58	5.02	4.94	5.46	3.34	0.73	9.53	9.0	8.80	8.0	9067
1.14	0.08	1.65	0.51	3.38	3.29	6.36	3.71	1.79	11.86	11.0	10.07	10.0	9003
0.62	0.52	0.26	0.35	1.75	1.65	6.00	4.39	0.97	11.36	11.0	10.39	10.0	8927
0.63	0.50	0.31	0.36	1.80	1.65	6.42	4.69	0.88	11.99	11.0	11.11	10.0	9076
1.00	0.82	0.41	0.55	2.78	2.47	6.20	4.10	1.60	11.90	11.0	10.30	10.0	8928
1.06	0.10	0.37	3.13	4.66	4.53	1.20	2.61	0.37	4.18	4.0	3.81	3.0	9066
1.00	0.81	0.36	0.49	2.66	2.47	6.36	3.98	1.24	11.58	11.0	10.34	10.0	9065
0.26	0.06	0.98	3.27	4.57	4.53	1.58	2.15	0.52	4.25	4.0	3.73	3.0	9126
0.38	0.47	0.72	0.09	1.66	1.65	6.13	4.20	1.04	11.37	11.0	10.33	10.0	9004
0.60	0.57	0.30	0.55	2.02	1.65	6.38	3.77	1.65	11.80	11.0	10.15	10.0	9005
0.82	0.08	0.22	3.27	4.39	4.53	2.39	1.53	0.46	4.38	4.0	3.92	3.0	9068
0.87	0.10	3.58		4.55	4.53	2.17	1.58	0.47	4.22	4.0	3.75	3.0	9319
0.85	0.10	0.27	3.12	4.34	4.53	1.62	2.37	0.33	4.32	4.0	3.99	3.0	9078
0.73	0.41	0.37	0.34	1.85	1.65	6.14	4.26	1.33	11.73	11.0	10.40	10.0	9069
0.68	0.40	0.38	0.35	1.81	1.65	6.58	4.37	1.28	12.23	11.0	10.95	10.0	9077
0.38	0.18	0.46	0.83	1.85	1.65	8.30	2.74	2.20	13.24	11.0	11.04	10.0	9070
0.10	1.71	0.51	1.22	3.54	3.29	8.03	2.29	0.87	11.19	11.0	10.32	10.0	9079
0.98	0.48	0.51	0.60	2.57	2.47	8.34	2.28	2.16	12.78	11.0	10.62	10.0	9071
....	1.70	0.60	2.00	4.30	4.11	3.06	1.78	0.70	5.54	5.0	4.84	4.0	8988
1.55	1.95	0.48	1.69	5.67	5.75	3.67	2.55	0.87	7.09	6.0	6.22	5.0	9080
0.13	0.43	0.31	1.71	2.58	2.47	7.29	2.79	1.27	11.35	10.5	10.08	10.0	9169
....	1.31	0.58	1.27	3.16	3.29	6.07	2.00	1.27	9.34	8.5	8.07	8.0	8899
2.20	0.04	0.22	1.63	4.09	4.11	7.46	2.89	0.60	10.95	10.5	10.35	10.0	9315
0.97	0.11	0.06	3.12	4.26	4.11	2.79	1.61	0.81	5.21	4.5	4.40	4.0	9090
0.08	0.07	0.76	0.87	1.78	1.64	6.87	3.62	0.87	11.36	11.0	10.49	10.0	9088
0.24	0.74	0.72	0.86	2.56	2.46	7.28	3.24	0.47	10.99	11.0	10.52	10.0	9089
0.39	1.35	0.78	0.94	3.46	3.28	7.54	3.52	0.77	11.83	11.0	11.06	10.0	8898
0.84	0.08	1.03	1.76	3.71	4.10	2.98	3.80	1.69	8.47	7.0	6.78	6.0	9316
0.88	1.40	0.76	1.26	4.30	4.10	7.09	3.20	0.84	11.13	11.0	10.29	10.0	8897

TABLE II—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station Agent:</i>			
Berkshire Fertilizer Co., Bridgeport, Conn.			
8900	Ammoniated Bone Phosphate.....	Norwich Town.....	\$24.00
9081	Economical Grass Fertilizer.....	Rockville.....	50.00
9008	Grass Special.....	Centerbrook.....	42.00
9091	Market Garden Fertilizer.....	Westport.....	48.00
9007	Potato and Vegetable Phosphate.....	Westport.....	38.00
8929	Root Fertilizer.....	Waterbury.....	36.00
9082	Tobacco Grower.....	Rockville.....	36.00
F. E. Boardman, Middletown, Conn.			
9092	Fertilizer for Potatoes and General Crops.....	Middletown.....	34.00
9093	Tobacco Fertilizer.....	Middletown.....	35.00
Bowker Fertilizer Co., New York City.			
9127	Four Ten Hill and Drill.....	Willimantic.....	33.00
9010	High Nitrogen Mixture without Potash.....	Bristol.....	54.00
9009	One Ten Sure Crop.....	Mansfield Depot.....	27.00
8903	Stockbridge Five Eight General Crop.....	Rockville.....	38.00
8930	Stockbridge Five Ten Early Crop.....	Rockville.....	39.00
8902	Superphosphate with Ammonia 2%.....	Stratford.....	.....
9083	Superphosphate with Ammonia 3%.....	Westport.....	31.00
8901	Superphosphate with Ammonia 4%.....	Stratford.....	35.00
9084	Superphosphate with Ammonia 5%.....	Wapping.....	36.50
9094	Three Ten All Round.....	Rockville.....	33.00
8931	Tobacco Grower 1916.....	Hazardville.....	38.00
9011	Two Ten Corn.....	Norwich.....	30.00
9085	Two Ten Potato.....	Brooklyn.....	29.00
F. O. Brown, Leonard's Bridge, Conn.			
8967	Special Formula for Potatoes and General Crops.....	Guilford.....	34.00
8932	Special for Oats and Top Dressing.....	Guilford.....	40.50
E. D. Chittenden Co., Bridgeport, Conn.			
8989	Vegetable and Onion Grower without Potash.....	Greens Farms.....	29.00
E. B. Clark Seed Co., Milford, Conn.			
8904	Ammoniated Bone Phosphate.....	Stratford.....	30.50
The Coe-Mortimer Co., New York City.			
9086	Connecticut Wrapper Grower without Potash.....	Somersville.....	40.00
9287	Excelsior Potato Fertilizer 1916.....	Manchester.....	.....
9095	H. G. Ammoniated Superphosphate 1916.....	Norwich.....	34.00
9096	Morcoo Top Dresser without Potash.....	Somersville.....	55.00
9072	Prolific Crop Producer 1916.....	Wethersfield.....	.....
8990	XXV Ammoniated Phosphate 1916.....	Old Mystic.....	27.00
Essex Fertilizer Co., Boston, Mass.			
9170	Potato, Corn and Vegetable Fertilizer.....	Willimantic.....	37.00
\$9097	Potato Manure.....	Ellington.....	40.00
9074	Potato Phosphate.....	South Manchester.....	38.00
9098	Tobacco Manure.....	South Manchester.....	41.00
9073	XXX Fish Fertilizer.....	Poquonock.....	30.00

§ Market Garden and Potato Manure shipped under wrong brand name.

WITHOUT POTASH—(*Continued.*)

Nitrogen.						Phosphoric Acid.						Station No.	
In Nitrates.	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.		So-called "Available."		
				Found.	Guaranteed.				Found.	Guaranteed.			
....	0.02	0.18	0.96	1.16	0.80	9.30	2.37	0.23	11.90	11.0	11.67	10.0	8900
6.82	0.12	0.84	0.65	8.43	7.40	0.01	5.96	1.05	7.02	8.0	5.97	4.0	9081
3.83	0.12	0.31	0.75	5.01	5.00	5.59	2.28	1.05	8.92	6.0	7.87	5.0	9008
0.98	0.25	1.11	1.14	3.48	3.30	2.86	5.47	1.47	9.80	9.0	8.33	8.0	9091
0.81	0.10	0.44	0.67	2.02	1.70	9.20	2.06	0.59	11.85	11.0	11.26	10.0	9007
0.14	1.10	0.41	1.31	2.96	2.50	4.61	3.49	1.62	9.72	9.0	8.10	8.0	8929
0.10	1.34	1.10	2.38	4.92	4.50	2.76	3.20	0.19	6.15	6.0	5.96	5.0	9082
1.16	0.24	0.54	1.58	3.52	3.30	1.02	6.63	0.63	8.28	....	7.65	7.0	9092
0.96	0.47	0.58	1.57	3.58	3.30	1.54	6.14	0.67	8.35	....	7.68	7.0	9093
0.80	1.10	0.97	0.65	3.52	3.29	6.64	3.62	1.64	11.90	11.0	10.26	10.0	9127
3.50	3.82	0.58	0.38	8.28	8.29	4.45	1.75	0.27	6.47	6.0	6.20	5.0	9010
0.40	0.32	0.13	0.25	1.10	0.82	5.74	4.13	1.06	10.93	11.0	9.87	10.0	9009
0.54	1.92	0.61	1.24	4.31	4.11	5.28	3.11	1.46	9.85	9.0	8.39	8.0	8903
0.31	1.93	0.46	1.33	4.03	4.11	6.88	3.40	1.41	11.69	11.0	10.28	10.0	8930
0.22	0.40	0.56	0.64	1.82	1.65	5.45	5.26	1.30	12.01	11.0	10.71	10.0	8902
0.49	0.75	0.45	0.69	2.38	2.47	7.30	3.86	0.99	12.15	11.0	11.16	10.0	9083
0.95	1.25	0.61	0.61	3.42	3.29	7.08	3.61	1.27	11.96	11.0	10.69	10.0	8901
0.87	1.51	0.50	1.18	4.06	4.11	5.38	3.44	1.34	10.16	9.0	8.82	8.0	9084
0.64	0.46	0.70	0.88	2.68	2.47	5.55	4.68	1.71	11.94	11.0	10.23	10.0	9094
1.08	0.08	0.07	3.01	4.24	4.11	1.86	2.64	0.36	4.86	5.0	4.50	4.0	8931
0.60	0.52	0.33	0.34	1.79	1.65	6.04	4.05	1.68	11.77	11.0	10.09	10.0	9011
0.60	0.52	0.23	0.58	1.93	1.65	6.40	3.92	1.19	11.51	11.0	10.32	10.0	9085
0.44	1.36	0.77	0.98	3.55	3.29	6.89	4.27	0.87	12.03	11.0	11.16	10.0	8967
1.55	1.55	0.52	1.01	4.63	4.92	4.96	5.36	1.92	12.24	9.0	10.32	8.0	8932
1.27	0.15	0.63	0.84	2.89	2.47	7.72	2.96	1.00	11.68	11.0	10.68	10.0	8989
0.21	1.95	0.40	0.91	3.47	3.29	7.15	3.25	1.74	12.14	11.0	10.40	10.0	8904
1.07	0.12	0.17	3.10	4.46	4.53	1.76	2.31	0.43	4.50	4.0	4.07	3.0	9086
0.29	2.14	0.49	1.39	4.31	4.11	7.20	2.61	1.84	11.65	11.0	9.81	10.0	9287
1.02	0.86	0.39	0.47	2.74	2.47	6.29	4.07	1.09	11.45	11.0	10.36	10.0	9095
3.37	3.91	0.59	1.03	8.90	8.23	3.62	1.86	0.20	5.68	6.0	5.48	5.0	9096
0.80	0.95	0.73	1.11	3.59	3.29	5.56	4.43	1.19	11.18	11.0	9.99	10.0	9072
....	0.23	0.55	0.27	1.05	0.82	5.44	4.99	1.16	11.59	11.0	10.43	10.0	8990
0.38	1.75	0.78	1.23	4.14	4.10	7.89	2.38	1.13	11.40	11.0	10.27	10.0	9170
0.51	0.76	0.73	0.81	2.81	2.87	7.89	3.53	0.73	12.15	11.0	11.42	10.0	9097
0.68	0.98	1.30	0.34	3.30	3.28	7.13	4.51	0.86	12.50	11.0	11.64	10.0	9074
0.48	0.58	1.18	1.94	4.18	4.10	4.02	3.97	1.32	9.31	7.0	7.99	6.0	9098
0.33	0.46	1.59	0.44	2.82	2.46	7.80	3.71	0.90	12.41	11.0	11.51	10.0	9073

TABLE II—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station Agent:</i>			
	The L. T. Frisbie Co., New Haven, Conn.		
8970	Connecticut Special for all Crops.....	New Britain.....	\$35.00
8969	Corn and Grain Fertilizer.....	Norwich.....	35.00
9087	Market Garden and Top Dresser.....	Meriden.....	58.00
8968	Potato and Vegetable Grower.....	Guilford.....	.....
8905	Tobacco Special.....	Stuffield.....	35.00
9128	Tobacco Special.....	Windsor.....	35.00
International Agricultural Corporation, Buffalo, N. Y.			
9099	Buffalo Farmers Choice.....	Plainfield.....	32.00
8991	Buffalo New England Special.....	West Cheshire.....	25.50
9314	Buffalo Standard.....	East Haven.....	38.00
9129	Buffalo Tobacco Grower.....	East Granby.....	.....
†9130	Buffalo Top Dresser.....	Thompsonville.....	45.00
†9131	Buffalo Vegetable and Potato.....	Plainfield.....	34.00
Lister's Agricultural Chemical Works, Newark, N. J.			
9135	Atlas Brand Fertilizer 1916.....	Stratford.....	.....
9134	Celebrated Tobacco Fertilizer without Potash.....	Warehouse Point.....	.....
9133	Complete Tobacco Fertilizer without Potash.....	Rockville.....	.....
8992	Plant Food 1916.....	Hamden.....	.....
9132	Superior Ammoniated Superphosphate 1916.....	Danbury.....	34.00
Lowell Fertilizer Co., Boston, Mass.			
9137	Animal Brand.....	Moosup.....	32.50
9149	Bone Fertilizer.....	Wallingford.....	30.00
8971	Empress Brand.....	Southington.....	29.00
9147	Market Garden Special Grass and Lawn Dressing.....	Rockville.....	42.00
9146	Potato, Corn and Vegetable.....	Warehouse Point.....	.....
9136	Potato Manure.....	Saybrook.....	37.00
9145	Potato Phosphate.....	Southington.....	35.00
9148	Tobacco Grower.....	Somers.....	40.00
E. Manchester and Sons, Winsted, Conn.			
9150	1917 Formula.....	Ellington.....	.....
The Mapes Formula and Peruvian Guano Co., New York City.			
‡8972	5% Ammonia Special.....	Hartford.....	38.00
9151	5% Ammonia Special.....	Ellington.....	34.00
8973	1917 Special.....	Norwich.....	35.00
National Fertilizer Co., New York City.			
9156	H. G. Top Dressing without Potash.....	Granby.....	60.00
9152	Nitrogen Phosphate Mixture No. 1.....	Winsted.....	25.00
9153	Nitrogen Phosphate Mixture No. 2.....	Ridgefield.....	45.00
9154	Nitrogen Phosphate Mixture No. 3.....	Newington.....	.....
8993	Nitrogen Phosphate Mixture No. 4.....	West Cheshire.....	33.00
9155	Nitrogen Phosphate Mixture No. 5.....	Ellington.....	33.00
9171	Nitrogen Phosphate Mixture No. 6.....	Ellington.....	.....
8974	Tobacco Special without Potash.....	Thompsonville.....	39.50

WITHOUT POTASH—(Continued.)

Nitrogen.							Phosphoric Acid.							Station No.	
In Nitrates.	In Ammonia.	Organic, water-insoluble.	Organic, water-insoluble.	Total.		Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.		So-called "Available."	Found.	Guaranteed.		
				Found.	Guaranteed.				Water-soluble.	Citrate-soluble.					
0.34	0.48	0.69	0.79	2.30	2.46	7.60	3.43	0.78	11.81	11.0	11.03	10.0	8970		
0.03	0.09	0.84	0.84	1.80	1.64	6.60	4.00	0.59	11.19	11.0	10.60	10.0	8969		
0.91	1.44	0.73	1.06	4.14	4.10	7.61	3.23	0.58	11.42	11.0	10.84	10.0	9087		
0.44	1.29	0.71	0.93	3.37	3.28	7.07	4.13	0.79	11.99	11.0	11.20	10.0	8968		
0.69	0.09	1.61	1.82	4.21	4.10	3.60	3.75	1.43	8.78	7.0	7.35	6.0	8905		
0.15	1.01	1.08	2.20	4.44	4.10	3.61	3.99	1.27	8.87	7.0	7.60	6.0	9128		
0.49	0.05	0.12	0.40	1.06	0.80	6.83	3.00	1.39	11.22	11.0	9.83	10.0	9099		
0.46	0.12	0.71	0.55	1.84	1.60	3.43	6.90	1.57	11.90	11.0	10.33	10.0	8991		
1.67	0.08	0.80	0.95	3.50	3.30	3.24	6.58	3.34	13.16	11.0	9.82	10.0	9314		
0.19	1.90	0.27	1.59	3.95	4.10	2.66	2.38	0.73	5.77	5.0	5.04	4.0	9129		
2.66	0.83	0.61	0.68	4.78	5.80	2.30	5.66	2.02	9.98	7.0	7.96	6.0	9130		
1.12	0.09	0.61	0.40	2.22	2.50	4.35	5.24	1.82	11.41	11.0	9.59	10.0	9131		
1.35	1.44	0.47	1.06	4.32	4.11	6.56	2.32	1.01	9.89	9.0	8.88	8.0	9135		
0.23	0.07	0.65	3.65	4.60	4.53	2.40	1.16	0.51	4.07	4.0	3.56	3.0	9134		
1.05	1.04	1.12	0.96	4.17	4.11	1.14	3.84	1.38	6.36	5.0	4.98	4.0	9133		
0.14	0.22	0.36	0.60	1.32	0.82	5.59	4.67	1.33	11.59	11.0	10.26	10.0	8992		
0.70	0.28	1.18	1.24	3.40	3.29	2.13	6.15	2.67	10.95	11.0	8.28	10.0	9132		
0.32	0.58	0.74	0.98	2.62	2.87	7.87	3.55	0.63	12.05	11.0	11.42	10.0	9137		
0.37	0.11	0.74	0.84	2.06	2.05	6.79	3.43	1.51	11.73	11.0	10.22	10.0	9149		
0.05	0.07	0.59	0.72	1.43	1.25	7.76	4.00	1.11	12.87	11.0	11.76	10.0	8971		
0.53	1.66	1.32	1.47	4.98	4.92	5.40	4.05	1.19	10.64	9.0	9.45	8.0	9147		
0.74	1.49	0.81	0.94	3.98	4.10	8.02	3.15	0.79	11.96	11.0	11.17	10.0	9146		
0.38	0.65	0.72	0.94	2.69	2.46	7.43	3.83	0.50	11.76	11.0	11.26	10.0	9136		
0.54	1.22	0.76	0.88	3.40	3.28	7.31	3.80	0.84	11.95	11.0	11.11	10.0	9145		
0.27	0.05	1.71	2.19	4.22	4.10	4.10	3.23	1.11	8.44	7.0	7.33	6.0	9148		
0.67	0.44	0.62	1.39	3.12	2.47	6.58	4.02	2.09	12.69	....	10.60	10.0	9150	
3.50	0.04	0.09	0.50	4.13	4.12	2.74	6.51	2.28	11.53	10.0	9.25	8.0	8972		
3.72	0.06	0.22	0.53	4.53	4.12	4.97	4.09	2.07	11.13	10.0	9.06	8.0	9151		
2.96	0.03	0.29	0.50	3.78	3.29	4.94	4.18	1.56	10.68	10.0	9.12	8.0	8973		
2.59	4.03	1.30	1.03	8.95	8.23	3.70	2.03	0.27	6.00	6.0	5.73	5.0	9156		
0.03	0.10	0.36	0.52	1.01	0.82	4.67	5.95	1.01	11.63	11.0	10.62	10.0	9152		
0.45	0.55	0.18	0.64	1.82	1.65	7.31	3.32	1.27	11.90	11.0	10.63	10.0	9153		
0.36	0.62	0.52	1.03	2.53	2.47	6.25	4.25	1.01	11.51	11.0	10.50	10.0	9154		
0.78	1.35	0.50	0.66	3.29	3.29	6.44	4.27	1.42	12.13	11.0	10.71	10.0	8993		
1.62	1.13	0.66	0.80	4.21	4.11	5.60	3.48	1.56	10.64	9.0	9.08	8.0	9155		
0.28	2.26	0.41	1.39	4.34	4.11	6.92	3.15	1.57	11.64	11.0	10.07	10.0	9171		
1.28	0.08	0.01	3.58	4.95	4.53	1.53	2.41	0.54	4.48	4.0	3.94	3.0	8974		

TABLE II—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
<i>Sampled by Station Agent:</i>			
New England Fertilizer Co., Boston, Mass.			
9172	Corn and Grain Fertilizer.....	Rockville.....	\$29.00
9223	Corn Phosphate.....	Madison.....	
9222	High Grade Potato Fertilizer.....	North Haven.....	36.00
†9173	Potato Fertilizer.....	Rockville.....	34.00
9174	Special Tobacco Manure.....	Warehouse Point.....	40.00
8994	Superphosphate.....	Meriden.....	35.00
Olds and Whipple, Hartford, Conn.			
9175	High Grade Tobacco Starter.....	Windsor.....	
9176	Special Grass Fertilizer.....	Hartford.....	38.50
8995	Special Phosphate.....	Silver Lane.....	33.50
9052	Tobacco Special Fertilizer.....	Hartford.....	37.50
9053	Tobacco Special Fertilizer.....	Hartford.....	37.50
9054	Tobacco Special Fertilizer.....	Hartford.....	37.50
9055	Tobacco Special Fertilizer.....	Hartford.....	37.50
Parmenter and Polsey Fertilizer Co., Boston, Mass.			
9177	Grain Grower.....	Plantsville.....	30.00
8975	Plymouth Rock Brand.....	Highwood.....	
9178	Potato Fertilizer.....	Bloomfield.....	32.00
9317	Special Tobacco Grower.....	Windsor.....	40.00
9179	Star Brand Superphosphate.....	Plantsville.....	32.00
The Rogers and Hubbard Co., Portland, Conn.			
8996	Hubbard's Bone Base Oats and Top Dressing.....	Branford.....	52.00
9180	Hubbard's Bone Base Soluble Corn and General Crops Manure.....	Branford.....	38.00
9193	Hubbard's Bone Base Soluble Tobacco Manure.....	Portland.....	41.50
9199	Rogers' All Soils—All Crops Phosphate.....	Portland.....	
9200	Rogers' Climax Tobacco Brand.....	Portland.....	
9195	Rogers' Complete Phosphate.....	Black Hall.....	30.00
9201	Rogers' H. G. Oats and Top Dressing.....	Somers.....	
9202	Rogers' H. G. Soluble Corn and Onion Manure.....	Black Hall.....	35.00
*8997	Rogers H. G. Soluble Tobacco Manure.....	Milford.....	45.00
*9347	Rogers' H. G. Soluble Tobacco Manure.....	Wapping.....	43.00
9203	Rogers' Potato Phosphate.....	Mansfield Depot.....	34.00
9194	R. and H. All Soils—All Crops Phosphate.....	Wethersfield.....	
9196	R. and H. Complete Phosphate.....	Willimantic.....	33.00
9197	R. and H. Potato Phosphate.....	Stafford Springs.....	40.00
9198	R. and H. Valley Tobacco Brand.....	Portland.....	
F. S. Royster Guano Co., Baltimore, Md.			
*9225	Curfew Ammoniated Superphosphate.....	Branford.....	37.00
*9348	Curfew Ammoniated Superphosphate.....	Madison.....	34.00
*9228	Goodwill Ammoniated Superphosphate.....	Plainville.....	39.50
*9404	Goodwill Ammoniated Superphosphate.....	Windsor.....	38.25
9227	Innovation Ammoniated Superphosphate.....	Branford.....	32.00
9204	Penguin Ammoniated Superphosphate.....	Waterbury.....	30.00
9229	Stevens' Formula.....	Glastonbury.....	36.00
9226	Valley Tobacco Compound.....	Windsor.....	38.50

WITHOUT POTASH—(Continued.)

Nitrogen.						Phosphoric Acid.						Station No.	
In Nitrates.	In Ammonia.	Organic, water-insoluble.	Total.	Found.	Guaranteed.	Water-insoluble.	Citrato-soluble.	Citrato-insoluble.	Total.	Guaranteed.	So-called "Available."		
0.04	0.12	0.51	0.69	1.36	1.23	5.91	3.72	1.83	11.46	11.0	9.63	10.0	9172
0.10	0.42	0.72	0.78	2.02	2.05	7.58	3.74	0.91	12.23	11.0	11.32	10.0	9223
0.63	1.12	0.63	0.93	3.31	3.28	7.46	3.72	0.87	12.05	11.0	11.18	10.0	9222
0.30	0.62	0.92	0.49	2.33	2.46	5.53	4.00	2.12	11.65	11.0	9.53	10.0	9173
0.71	0.09	1.01	2.29	4.10	4.10	4.09	3.53	1.18	8.80	7.0	7.62	6.0	9174
0.59	0.78	0.71	0.90	2.98	2.87	7.65	3.67	0.58	11.90	11.0	11.32	10.0	8994
3.37	0.21	0.21	5.85	9.64	9.06	2.49	2.41	0.60	5.50	3.0	4.90	3.0	9175
1.92	0.10	0.75	2.78	5.55	4.95	0.79	3.24	3.07	7.10	4.0	4.03	4.0	9176
1.58	0.04	0.89	2.07	4.58	4.11	0.56	3.28	3.54	7.38	4.0	3.84	4.0	8995
0.96	0.07	0.39	3.08	4.50	4.11	1.65	2.14	0.37	4.16	3.0	3.79	3.0	9052
.....	.....	.....	4.31	4.11	.....	.....	.....	.....	3.94	3.0	.....	.....	9053
.....	.....	.....	4.16	4.11	.....	.....	.....	.....	3.58	3.0	.....	.....	9054
.....	.....	.....	4.26	4.11	.....	.....	.....	.....	3.67	3.0	.....	.....	9055
0.05	0.06	0.70	0.68	1.49	1.23	7.99	2.96	0.97	11.92	11.0	10.95	10.0	9177
0.56	0.78	0.83	0.99	3.16	2.88	7.51	3.89	0.60	12.00	11.0	11.40	10.0	8975
0.04	0.50	0.73	0.76	2.03	2.05	7.40	3.75	0.75	11.90	11.0	11.15	10.0	9178
0.18	0.04	1.50	2.18	3.90	4.10	4.08	3.44	1.24	8.76	7.0	7.52	6.0	9317
0.32	0.69	0.62	0.79	2.42	2.46	7.11	3.55	0.55	11.21	11.0	10.66	10.0	9179
5.31	0.14	0.37	0.44	6.26	6.00	0.00	6.52	6.32	12.84	12.0	6.52	6.0	8996
0.54	0.84	0.33	0.79	2.50	2.50	1.45	7.78	4.55	13.78	12.0	9.23	10.0	9180
2.97	0.79	0.43	0.85	5.04	5.00	0.02	9.33	3.51	12.86	12.0	9.35	10.0	9193
2.53	0.15	0.13	0.68	3.49	3.30	3.70	3.96	1.41	9.07	8.0	7.66	7.0	9199
0.93	1.10	0.29	2.50	4.82	4.12	0.03	1.98	1.88	3.89	4.0	2.01	3.0	9200
0.20	0.05	0.27	0.57	1.09	1.00	3.67	3.38	2.61	9.66	9.0	7.05	8.0	9195
5.71	0.14	0.26	0.38	6.49	6.00	0.00	6.58	5.65	12.23	12.0	6.58	6.0	9201
0.54	0.70	0.51	0.86	2.61	2.50	0.78	8.73	4.63	14.14	12.0	9.51	10.0	9202
1.61	1.75	0.60	1.04	5.00	5.00	0.07	8.65	4.25	12.97	12.0	8.72	10.0	8997
2.20	1.32	0.50	0.91	4.93	5.00	0.21	8.51	4.12	12.84	12.0	8.72	10.0	9347
0.45	0.56	0.55	0.66	2.22	2.00	6.36	5.47	3.85	15.68	14.0	11.83	13.0	9203
2.66	0.34	0.48	0.52	4.00	3.30	2.15	4.55	2.15	8.85	8.0	6.70	7.0	9194
0.17	0.21	0.37	0.71	1.46	1.00	3.77	3.60	2.92	10.29	9.0	7.37	8.0	9196
0.32	1.02	0.21	0.62	2.17	2.00	9.58	4.89	1.29	15.76	14.0	14.47	13.0	9197
1.68	0.28	0.25	2.53	4.74	4.12	0.12	1.86	1.97	3.95	4.0	1.98	3.0	9198
.....
0.07	1.32	0.63	1.00	3.02	3.29	6.69	2.34	0.73	9.76	8.5	9.03	8.0	9225
0.04	1.50	0.55	1.13	3.22	3.29	6.16	2.06	0.59	8.81	8.5	8.22	8.0	9348
0.16	1.80	0.50	1.38	3.84	4.11	6.57	1.96	0.49	9.02	8.5	8.53	8.0	9228
0.14	1.92	0.46	1.68	4.20	4.11	6.89	1.57	0.51	8.97	8.5	8.46	8.0	9404
0.04	1.03	0.50	0.88	2.45	2.47	6.00	2.29	0.68	8.97	8.5	8.29	8.0	9227
0.12	0.82	0.24	0.50	1.68	1.65	6.28	3.88	1.37	11.53	10.5	10.16	10.0	9204
0.16	0.89	0.37	2.59	4.01	4.11	3.59	2.60	1.04	7.23	6.5	6.19	6.0	9229
0.25	0.67	0.30	2.89	4.11	4.11	3.27	2.71	0.77	6.75	6.5	5.98	6.0	9226

TABLE II—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
	<i>Sampled by Station Agent:</i> Sanderson Fertilizer and Chemical Co., New Haven, Conn.		
*8907	H. G. Ammoniated Phosphate.....	Stratford.....	\$33.00
*9075	H. G. Ammoniated Phosphate.....	Orange.....	30.50
*9308	H. G. Ammoniated Phosphate.....	Highwood.....	
9224	Phosphate without Potash.....	Plainville.....	30.00
8906	Special without Potash.....	Stratford.....	29.25
	The C. M. Shay Co., Groton, Conn.		
9231	4-8.....	Groton.....	33.00
	M. L. Shoemaker and Co., Philadelphia, Pa.		
8998	"Swift-Sure" Superphosphate for Tobacco and General Use.....	Hartford.....	39.00
	Springfield Rendering Co., Springfield, Mass.		
9230	Animal Fertilizer.....	Thompsonville.....	33.00
	Virginia-Carolina Chemical Co., New York City.		
9233	Ammoniated Bone Phosphate for all Crops.....	Norwich.....	28.00
8999	H. G. Corn and Vegetable Compound without Potash.....	Norwich.....	32.00
9232	Indian Brand for Tobacco (C. S. M.) without Potash.....	Glastonbury.....	35.65
9309	Special Top Dresser.....	Milford.....	40.00
9310	20th Century Potato Manure without Potash.....	Winsted.....	37.00
	Wilcox Fertilizer Co., Mystic, Conn.		
9311	Complete Bone Superphosphate.....	Rockville.....	26.00
9048	Corn Special.....	Hartford.....	34.50
8886	Grass Fertilizer.....	Meriden.....	30.50
	Worcester Rendering Co., Auburn, Mass.		
9312	Royal Worcester Corn and Grain Fertilizer.....	Norwich.....	28.00
9313	Royal Worcester Potato and Vegetable Fertilizer.....	Norwich.....	33.00
	<i>Sampled by Purchasers and Others:</i>		
8713	Amer. Agr. Chem. Co.'s Complete Tobacco Fertilizer without Potash.....	E. Windsor Hill:—Keiser & Boasberg Plant.	37.50
8714	Amer. Agr. Chem. Co.'s Complete Tobacco Fertilizer without Potash.....	E. Windsor Hill:—Keiser & Boasberg Plant.	37.50
8715	Amer. Agr. Chem. Co.'s Complete Tobacco Fertilizer without Potash.....	E. Windsor Hill:—Keiser & Boasberg Plant.	37.50
8716	Amer. Agr. Chem. Co.'s Complete Tobacco Fertilizer without Potash.....	E. Windsor Hill:—Keiser & Boasberg Plant.	37.50
9400	Amer. Agr. Chem. Co.'s Grain and Seeding Fertilizer	Stafford:—F. L. Upham	27.00

WITHOUT POTASH—(Continued.)

In Nitrates,	Nitrogen.					Phosphoric Acid.					So-called "Available."	Station No.	
	In Ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Found.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.	Total.	Found.	Guaranteed.		
0.48	0.12	1.13	1.66	3.39	3.29	2.62	6.49	6.82	15.93	11.0	9.11	10.0	8907
1.58	0.15	0.40	1.51	3.64	3.29	8.82	3.74	1.33	13.89	11.0	12.56	10.0	9075
1.60	0.11	0.73	0.96	3.40	3.29	4.62	6.29	0.49	11.40	11.0	10.91	10.0	9308
0.18	0.13	0.56	0.95	1.82	1.65	1.97	8.22	2.26	12.45	11.0	10.19	10.0	9224
0.35	0.13	0.74	1.45	2.67	2.47	4.11	6.08	4.14	14.33	11.0	10.19	10.0	8906
0.76	0.12	1.45	1.11	3.44	3.28	3.26	5.20	1.89	10.35	10.0	8.46	8.0	9231
1.06	0.05	0.96	1.63	3.70	3.29	6.97	4.21	1.59	12.77	12.0	11.18	9.0	8998
0.50	0.45	1.01	0.81	2.77	2.46	8.43	3.20	0.42	12.05	11.0	11.63	10.0	9230
0.12	0.78	0.39	0.51	1.80	1.65	6.66	2.77	1.37	10.80	11.0	9.43	10.0	9233
0.01	1.05	0.70	0.89	2.65	2.47	7.80	2.78	0.93	11.51	11.0	10.58	10.0	8999
1.12	0.46	0.41	2.13	4.12	4.11	1.57	2.42	6.41	10.40	5.0	3.99	4.0	9232
0.24	1.58	1.32	1.76	4.90	4.94	6.51	2.01	1.78	10.30	9.0	8.52	8.0	9309
0.21	1.91	0.68	1.48	4.28	4.12	9.01	1.64	0.86	11.51	11.0	10.65	10.0	9310
0.79	0.28	0.15	1.24	2.46	1.65	7.91	2.71	0.88	11.50	11.0	10.62	10.0	9311
0.55	0.14	0.73	2.30	3.72	3.30	4.22	5.43	3.57	13.22	11.0	9.65	10.0	9048
2.67	0.05	1.84		4.56	4.12	7.39	3.41	1.25	12.05	9.0	10.80	8.0	8886
0.85	0.58	0.68	0.61	2.72	2.05	8.49	5.19	3.03	16.71	11.0	13.68	10.0	9312
1.35	0.45	1.16	1.29	4.25	3.28	5.20	5.25	4.03	14.48	11.0	10.45	10.0	9313
....	....	....	....	4.52	4.53	....	....	....	4.64	4.0	....	3.0	8713
....	....	....	....	4.58	4.53	....	....	....	4.72	4.0	....	3.0	8714
....	....	....	....	4.52	4.53	....	....	....	4.50	4.0	....	3.0	8715
....	....	....	....	4.66	4.53	....	....	....	4.43	4.0	....	3.0	8716
0.73	0.74	0.73	2.20	1.65	6.52	3.95	1.56	12.03	11.0	10.47	10.0	9400	

TABLE II—NITROGENOUS SUPERPHOSPHATES.

Station No.	Manufacturer and Brand.	Place of Sampling.	Dealer's cash price per ton.
	<i>Sampled by Purchasers and Others:</i>		
8737	Quinnipiac Wrapper Brand.....	Hartford:—Haviland Tobacco Co.....	\$37.50
8738	Quinnipiac Wrapper Brand.....	Hartford:—Haviland Tobacco Co.....	37.50
8739	Quinnipiac Wrapper Brand.....	Hartford:—Haviland Tobacco Co.....	37.50
8962	Apothecaries Hall Co.'s Victor Potato Special.....	West Cheshire:—Whit- comb & Hadley.....	36.00
9144	Frisbie's Tobacco Fertilizer.....	Suffield:—E. S. Seymour	32.50
9138	Rogers & Hubbard's All Soils—All Crops Phosphate	Portland:—John Gotta.	31.00
9139	Hubbard's Bone Base Soluble Tobacco Manure.....	Portland:—John Gotta.	42.00
88751	Royster's Valley Tobacco Compound.....	Avon:—P. H. Woodford	.....
8766	Royster's Valley Tobacco Compound.....	New Milford:—L. W. Marsh.....	.....
9394	Sanderson's High Grade Ammoniated Phosphate....	Branford:—A. E. Plant Sons Co.....	.....
9060	Sanderson's High Grade Ammoniated Phosphate....	Cheshire:—T. L. Chip- man.....	.....
9395	Sanderson's Top Dresser.....	Branford:—A. E. Plant Sons Co.....	.....
9407	Shay's 4-10.....	New London:—J. M. Graves.....	37.00
8810	Virginia-Carolina Chem. Co.'s Indian Brand for To- bacco without Potash.....	Addison:—Chas. Bell..	35.65
8774	Unknown brand.....	Cornwall:—O. E. Tem- ple.....	.....
8861	5-10 Fertilizer.....	Roxbury:—J. G. Butler	.....

§Contains .078% of potash as muriates.

WITHOUT POTASH—(*Concluded.*)

Nitrogen.				Phosphoric Acid.				Station No.						
In Nitrates.	In Ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.	Water-soluble.	Citrate-soluble.	Citrate-insoluble.		Found.	Guaranteed.	So-called "Available."	Found.	Guaranteed.	
.....	4.58	4.53	.....	.....	4.22	4.0	.....	3.0	8737		
.....	4.76	4.53	.....	.....	4.48	4.0	.....	3.0	8738		
.....	4.58	4.53	.....	.....	4.80	4.0	.....	3.0	8739		
.....	2.65	2.47	.....	.....	.....	15.48	11.0	.....	10.0	8962		
.....	3.90	4.10	.....	.....	.....	8.30	7.0	.....	6.0	9144		
.....	3.34	3.30	.....	.....	.....	9.31	8.0	.....	7.0	9138		
.....	5.10	5.00	.....	.....	.....	12.59	12.0	.....	10.0	9139		
.....	4.35	4.11	.....	.....	.....	6.97	.....	.....	6.0	8751		
.....	4.45	4.11	.....	.....	.....	6.68	.....	.....	6.0	8766		
.....	3.39	3.29	.....	.....	.....	11.78	11.0	.....	10.0	9394		
.....	3.40	3.29	.....	.....	.....	10.96	11.0	.....	10.0	9060		
.....	3.39	3.29	.....	.....	.....	12.60	11.0	.....	10.0	9395		
0.11	0.38	2.45	2.94	3.29	2.11	4.36	1.42	7.89	.....	6.47	10.0	9407		
.....	4.06	4.12	.....	.....	.....	4.95	5.0	.....	4.0	8810		
.....	1.11	.....	.....	.....	.....	8.32	.....	.....	.....	8774		
.....	4.26	4.12	.....	.....	.....	11.71	.....	.....	10.0	8861		

VI. MISCELLANEOUS FERTILIZERS, LIME, ASHES, ETC.

SHEEP MANURE.

9211. Pulverized Sheep Manure. Sold by American Agricultural Chemical Co., New York City. Stock of Geo. S. Phelps & Co., Thompsonville.

9206. Sheep Manure. Sold by L. T. Frisbie Co., New Haven. Sampled and sent by F. S. Burnett, New Haven.

9349. Sheep Manure. Sold by L. T. Frisbie Co., New Haven. Stock of G. F. Peters & Son, Highwood.

9267. Sheep's Head Pulverized Sheep Manure. Sold by Natural Guano Co., Aurora, Ill. Stock of Frank S. Platt Co., New Haven.

9270. Wizard Brand Manure. Sold by Pulverized Manure Co., Chicago. Stock of Frank S. Platt Co., New Haven.

8896. Pulverized Sheep Manure. Sampled and sent by H. E. Larsen, Mt. Carmel.

9713. Chicago Feed & Fertilizer Co.'s Ground Sheep Manure. For analysis see page 422.

Station No.	9211	9206	9349	9267	9270	8896
<i>Per cent. of</i>						
Nitrogen as nitrates.....	0.10	...	0.12	...	...	...
" as ammonia.....	0.14	...	0.02	0.22	0.26	...
" as organic.....	1.94	....	1.45	1.93	1.72	....
" total found.....	2.18	2.07	1.59	2.15	1.98	2.31
" total guaranteed.....	2.06	....	0.82	2.25	1.80	....
Phosphoric acid, water-soluble.....	1.04	....	0.17	0.76	0.85	....
" " citrate-soluble...	0.36	....	1.67	0.79	0.50	....
" " citrate-insoluble..	0.15	....	0.22	0.13	0.13	....
" " total found.....	1.55	2.52	2.06	1.68	1.48	2.99
" " total guaranteed.	1.25	....	2.00	1.25	1.00	....
Water-soluble potash found.....	1.81	0.97	0.74	3.14	2.00	1.03
" " guaranteed..	1.00	....	0.97	1.50	1.00	....
Chlorin.....	....	....	0.08	0.38	0.90	....
Cost per ton.....	\$38.00	....	....	31.00	31.00	35.00

These dried manures are chiefly of interest to florists and to greenhouse or lawn owners. As we have said in previous reports, they are out of the question for general farm use, because horse manure supplies three or four times as much plant food for the same money, and the extra vegetable matter should be supplied in farm crops and residues.

WOOD ASHES.

Twenty samples called "wood ashes" were analyzed. Three of these, **8862**, **8811** and **8698**, have the character of lime-kiln ashes and contain very little potash. The remaining samples are good, bad or indifferent. Nine samples contained from 4.7 to 6.8 per cent. of potash; four from 2.8 to 3.7 per cent., and four from 0.8 to 1.7 per cent.

The prices were exceedingly variable; for instance, \$9.00 per ton for material containing 2.8 per cent. of potash; \$16.00 for ashes containing 1.5 per cent. and \$27.50 for one containing 4.72 per cent. Certain of the higher grades were sold on the unit basis, the price ranging from \$4.50 to \$6.00 per unit of water-soluble potash.

The extreme variability in the potash content of wood ashes emphasizes the necessity of always buying it on a definite guaranty of water-soluble potash.

Only three of the samples were accompanied by a guaranty, **9372**, **9025** and **8862**. These were guaranteed 2.00, 5.03 and 3.00 per cent. of potash, respectively, and contained 1.50, 4.72 and 0.07 per cent.

HOUSEHOLD WASTES.

At the present time, when the prices for potash fertilizers are almost prohibitive, any available source of this important element is a matter of interest. Possibly few householders realize the fertilizer value of many of their household wastes which they usually throw away. The actual content of potash in any of these is small, but may be worth saving.

The samples, whose analyses are given in the accompanying table, were for the most part prepared by Prof. P. E. Browning, of Yale University, and submitted by him to us for analysis. It is to be regretted that the actual percentages of ash were not determined, as the information thus supplied would have been valuable. The results, however, are suggestive, and indicate how much valuable fertilizer material in the aggregate is thrown away by the American public. Many of these ashes could be prepared in the ordinary open fireplace of the average home and could be collected with the ashes from the wood there burned. The citrus fruit skins, because of their oil, burn readily, and our analyses show how rich in potash their ashes are. The analyses also suggest the utility of community incinerating plants as a means of conserving the important amounts of potash which some household wastes contain.

ANALYSES OF WOOD ASHES.

Station No.	Car No. and Purchaser or Dealer.	Water.	Water-soluble Insoluble (sand)	Lime.	Phosphate Acid.	Water-soluble Potash.	Insoluble in Acid (sand)	Cost per ton.
9372	John Joynt, Lucknow, Ont. I. Lockwood, New Canaan...	...	...	1.50	29.27	1.29	\$16.00	
8971	John Joynt, Lucknow, Ont. J. E. Lathron, East Hartford...	...	36.17	1.54	...	...	...
8949	Olds & Whipple, Hartford. 64531 J. B. Stewart, Windsor...	...	12.45	6.56	33.62	2.01	...	
8950	Olds & Whipple, Hartford. 7813 E. P. Brewer, Silver Lane...	...	10.43	6.15	35.04	2.17	*	
8765	Olds & Whipple, Hartford. 17976 C. F. Segee, East Hartford...	...	6.66	5.03	...	...	...
9020	Olds & Whipple, Hartford. 24976 John Wolf, Windsor...	...	6.39	...	...	...	*
9025	Olds & Whipple, Hartford. H. W. Ferry, So., Glastonbury...	...	6.60	4.72	36.86	2.00	27.50	
92253	Olds & Whipple, Hartford. 3719 W. S. Pinney, Suffield (John Joynt)	...	...	6.50	...	...	...
9391	Olds & Whipple, Hartford. 76390 James Conroy, Warehouse Point...	...	...	0.73	...	1.44	*	
9140	J. E. Perkins, Warehouse Point. 29942 A. E. Pascoe, Warehouse Point...	...	...	2.82	25.88	1.93	9.00	
8862	John Meehan & Son, N. Y. City. K. Tobacco Corp., Tariffville...	10.45	7.66	0.97	52.70	0.22	15.00	
9219	W. L. Mitchell, New Haven. Comstock, Ferre & Co., Wethersfield...	...	3.66	...	...	...	...
8951	W. L. Mitchell, New Haven. 76551 K. C. Kulle, Suffield...	...	10.92	5.84	34.42	1.78	†	
8895	W. L. Mitchell, New Haven. 8507 K. C. Kulle, Suffield...	...	...	6.78	...	2.55	...	
8757	Chas. Stevens, Napanee, Ont. Albert Carini, So., Glastonbury...	...	17.79	3.25	...	...	...
8811	Roy Hayes, Granby. E. H. Rollins, Granby...	...	8.29	0.11	...	0.20	15.50	
8933	E. M. Brown, Hartford...	...	13.95	2.83	29.97	1.30	...	
9021	M. E. Crawford, New Canaan...	...	13.37	1.71	32.42	1.52	...	
9023	N. Jones, So., Windsor...	...	13.24	6.04	31.50	1.65	...	
8698	Conn. Sumatra Tobacco Co., Hartford...	...	0.08	...	...	...	...

* \$6 per unit of potash.

† \$4.50 per unit of potash.

ANALYSES OF THE ASHES OF HOUSEHOLD WASTES.

	Phosphoric Acid.	Water-Soluble Potash.
Apple Skin Ash.....	3.08	11.74
Banana Skin Ash.....	3.25	41.76
Banana Stalk Ash (yellow).....	2.34	49.40
Banana Stalk Ash (red).....	3.04	46.64
Banana Stalk Ash (soluble salts).....	?	45.28
Banana Stalk juice, evaporated, acidified.....	1.91	35.58
Banana Stalk juice, evaporated.....	2.25	40.20.*
Cantaloupe Rind Ash.....	9.77	12.21
Cigar and Cigarette Ashes.....	2.57	16.81
Coal Ashes, sifted.....	0.32	0.16
Coffee Grounds (percolated).....	0.36	0.67†
Cucumber Skin Ash.....	11.28	27.20
Egg Shells, burned.....	0.43	0.29‡
Grape Fruit Skin Ash.....	3.58	30.64
Grape Fruit Skin Ash (soluble salts).....	?	56.92
Maine Coast Kelp Ash.....	1.93	21.70
Orange Skin Ash.....	2.90	27.04
Peach Skin Ash.....	6.31	30.76
Peach Stone Ash.....	3.25	6.04
Peanut Shell Ash.....	1.23	6.45
Pea Pod Ash.....	1.79	9.00
String Beans Ash (stems and strings).....	4.99	18.09
Sweet Potato Skin (boiled) Ash.....	3.29	13.89
Tea Leaves Ash.....	1.60	0.44
White Potato Skin (raw) Ash.....	5.18	27.54
Wood Ashes.....	1.06	6.41
Wood Ashes, after burning citrus fruit skins.....	1.13	3.22

GROUND LIMESTONE.

8686. Grangers' Lime Co., West Stockbridge, Mass. Stock of Walter Hine, Orange. Cost \$3.50 per ton.

8700. Grangers' Lime Co., West Stockbridge, Mass. "200 Mesh." Stock of J. W. Alsop, Avon.

8736. Grangers' Lime Co., West Stockbridge, Mass. "200 Mesh." Stock of H. K. Taylor, Griffins.

8709. Grangers' Lime Co., West Stockbridge, Mass. "200 Mesh." Stock of W. J. Reeves, Windsorville.

9534. Grangers' Lime Co., West Stockbridge, Mass. Stock of S. Heath, New Canaan.

ANALYSES OF LIMESTONE.

Station No.....	8686	8700	8736	8709	9534
<i>Per cent. of</i>					
Lime.....	37.96	50.60	50.35	50.62	52.08
Magnesia.....	8.54	§	§	§	0.77
Insoluble in acid.....	14.68	6.35	6.81	6.24	7.22

* Contains also 0.45% nitrogen.

† Contains also 1.99% nitrogen.

‡ Contains also 52.12% lime.

§ Not determined.

8686 contains 67.72 per cent. of calcium carbonate and 17.85 per cent. of magnesium carbonate. The other four samples are quite pure calcitic limestones, containing from 89.84 to 92.91 per cent. of calcium carbonate.

HUMUS, MUCK, PEAT, ETC.

Two samples of commercial humus and five samples of muck were analyzed.

8685. Alphano Humus. Sent by Charles Henderson, Farmington. Cost \$10.00 per ton.

9062. Commercial Humus. Sent by Commercial Humus Co., Newark, N. J. Claimed to contain on dry basis; nitrogen 2.60, phosphoric acid 1.10, potash 0.51, lime 2.90, magnesia 0.50, ash 20.12, and organic matter 75 per cent.

8889. Sent by M. F. Dallen, Willimantic, from a deposit stated to be 20 feet deep, covering several acres.

9478, 9479, 9480. Sent by A. Sartore, Waterbury.

8769. Sent by G. L. Cass, So. Britain.

Station No.....	8685	9062	8889	9478	9479	9480	8769
<i>Composition as received:</i>							
Water.....	36.72	69.86	8.82	85.99	77.41	68.87	75.51
Mineral matter.....	22.32	9.83	10.72	1.28	3.18	2.81	11.55
Organic matter.....	40.96	20.31	80.46	12.73	19.41	28.32	12.94
Nitrogen.....	1.48	0.52	2.26	0.42	0.54	0.59	0.33
Phosphoric acid.....	1.11	0.02	*	*	*	*	*
Potash.....	*	0.03	*	*	*	*	*
Lime.....	4.19	*	*	*	*	*	*
Insoluble in acid.....	11.22	*	*	*	*	*	*

On water-free basis:

Mineral matter.....	35.27	32.61	11.76	9.14	14.08	9.03	47.16
Organic matter.....	64.73	67.39	88.24	90.86	85.92	90.97	52.84
Nitrogen.....	2.19	1.73	2.48	3.00	2.39	1.90	1.35
Phosphoric acid.....	1.75	0.06	*	*	*	*	*
Potash.....	*	0.11	*	*	*	*	*

The two commercial samples contain much more mineral matter and, consequently, less vegetable matter than four of the samples from local deposits. It will be noted that **9062** contains less of all the ingredients claimed except mineral matter, containing only two-thirds of the nitrogen, one-twentieth of the phosphoric acid and one-fifth of the potash claimed.

* Not determined.

TOBACCO WASTES.

8410. Tobacco Stems. Sold by Olds and Whipple, Hartford. Sampled and sent by H. E. Wells, East Windsor Hill.

8851. Tobacco Stems. Sampled and sent by A. T. Henry, Wallingford.

8850. Tobacco Waste Ash. Sampled and sent by A. T. Henry, Wallingford.

8848. Tobacco Dust. Sampled and sent by J. Rosenberg & Co., Hartford.

8702. Tobacco Dust. Sampled and sent by Morgan & Dickinson, Windsor.

	8410	8851	8850	8848	8702
Nitrogen.....	1.97	2.80	....	2.78	1.64
Phosphoric acid.....	0.56	0.79	1.10	0.69	0.42
Potash, total.....	6.67	5.27	6.10	2.88	2.50

MISCELLANEOUS MATERIALS.

9339. Spent Hops. Sent by Arthur Mather, Hartford.

Water.....	79.50
Mineral matter.....	1.52
Organic matter.....	18.98
Nitrogen.....	0.81
Phosphoric acid.....	0.31
Potash.....	0.05

9141. Coffee Chaff. Sent by Morris West, Glastonbury. It contained nitrogen 1.92, phosphoric acid 0.15 and potash 1.63 per cent.

8959. Coffee Grounds. Waste from manufacture of G. Washington Coffee. Sent by manufacturer.

Nitrogen.....	0.81
Phosphoric acid.....	0.016
Potash.....	0.166
Water.....	60.50

8952. Ground Star Fish. Sent by F. L. Homan, New Haven.

Nitrogen.....	4.48
Phosphoric acid.....	0.42
Lime.....	24.32

8953. Musselizer ("Mussel Mud," "Nature's Own Fertilizer"). Sold by Agricultural Development Co., Lewiston, Me. Sent by F. P. Hubbard, Middletown.

8854. Marsh and Marine Mud. Sent by G. D. Tillinghast, Westerly.

	8953	8854
Nitrogen.....	0.82	0.28
Phosphoric acid.....	....	0.09
Potash.....	0.18	0.03

8832. Kelp. Sent by E. E. Burwell, New Haven. It contained nitrogen 1.83, phosphoric acid 0.64 and potash 2.64 per cent.

8749. Chimney Soot. Sent by Donahoe Bros., Middletown. It contained 0.31 per cent. of nitrogen.

8759. Ashes from factory sweepings. Sent by Waterbury Mfg. Co., Waterbury. It contained 0.08 per cent. of potash and 70.02 per cent. of material insoluble in acid. Copper was present.

9280. Lye used for cleaning type. Sent by W. C. Sharpe, Seymour. It contained 0.34 per cent. of potash, no nitrogen, traces of phosphoric acid and sulphates, and much carbonate. Its reaction was strongly alkaline.

8855. Sample apparently incorrectly tagged "Dry Ground Fish." Stock of George S. Phelps Co., Thompsonville. A mixed fertilizer of unknown brand. It contained 5.15 nitrogen, 8.18 "available" phosphoric acid, 9.54 total phosphoric acid and 0.86 per cent. potash.

SOILS.

Six samples of soils were tested for acidity. The details are of no general interest.

9713. Ground Sheep Manure. Sold by the Chicago Feed & Fertilizer Co., Chicago. Sampled and sent by the F. S. Platt Co., New Haven. Contained—nitrogen, 2.74; total phosphoric acid, 2.84; water-soluble potash, 2.07; guaranteed respectively 1.85, 1.50 and 1.25 per cent.





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